88524

FINAL REPORT

ENVIRONMENTAL RESTORATION GUIDE

Prepared by
Collier, ShannoN Rill & Scott
3050 K Street, N.W.
Washington D.C. 20007

For
NATIONAL STEEL AND SHIPBUILDING COMPANY
Harbor Drive and 28th Street
Post Office Box 85278
San Diego, CA 92186-5278

In Behalf Of
SNAME SPC PANEL SP-1

FACILITIES AND ENVIRONMENTAL EFFECTS

Under the
NATIONAL SHIPBUILDING RESEARCH PROGRAM

September 1995

Report Documentation Page

Form Approved
OMB No. 0704-0188

1. REPORT DATE	2. REPORT TYPE	3. DATES COVERED
SEP 1995	**N/A**	**-**

4. TITLE AND SUBTITLE
Environmental Restoration Guide

5a. CONTRACT NUMBER
5b. GRANT NUMBER
5c. PROGRAM ELEMENT NUMBER

6. AUTHOR(S)

5d. PROJECT NUMBER
5e. TASK NUMBER
5f. WORK UNIT NUMBER

7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)
Naval Surface Warfare Center CD Code 2230 - Design Integration Tools Bldg 192 Room 128 9500 MacArthur Blvd Bethesda, MD 20817-5700

8. PERFORMING ORGANIZATION REPORT NUMBER

9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)

10. SPONSOR/MONITOR'S ACRONYM(S)

11. SPONSOR/MONITOR'S REPORT NUMBER(S)

12. DISTRIBUTION/AVAILABILITY STATEMENT
Approved for public release, distribution unlimited

13. SUPPLEMENTARY NOTES

14. ABSTRACT

15. SUBJECT TERMS

16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON
a. REPORT	b. ABSTRACT	c. THIS PAGE			
unclassified	**unclassified**	**unclassified**	**SAR**	**346**	

Standard Form 298 (Rev. 8-98)
Prescribed by ANSI Std Z39-18

TABLE OF CONTENTS

Page

Page

Page

EXHIBITS
TO NSRP ENVIRONMENTAL SEMINAR
FOR SHIPYARD RESTORATION

A. Uniform Hazardous Waste Manifest Form, 40 C.F.R. Part 262 App. A.

B. Closure Requirements, 40 C.F.R. $264.112.

c. June 11, 1992 EPA Letter Regarding Land Disposal Requirements.

D. RCRA/Superfund Hotline Monthly Summary (August 1987).

E. Designation of Hazardous Substances and Their Reportable Quantities ("RQs"), 40 C.F.IL $302.4, and amendments thereto, 60 Fed. Reg. 30937 (June 12, 1995).

F. RCRA/Superfund Hotline Status Report (December 1985).

G. CERCLA Section 103 Notification Instructions And Form, 46 Fed. Reg. 22151 (April 15, 1981).

H. Designation of Extremely Hazardous Substances And Their Reportable Quantities (“RQs”), 40 C.F.R $355, Apps. A and B).

I. M. Hill, "Private Party Cost Recovery Actions In The Wake of KFC Western v. Meghing and other Recent Developments,” 30 Chemical Waste Litigation Reporter 454 (August 1995).

J. List Of Clean Water Act Hazardous Substances, And Their Reportable Quantities ("RQs"), 40 C.F.R 117.3.

K. Regulatory Guidance Letter Regarding Application of Section 404 to Pilings. 58 Fed. Reg. at 17,211 (April 1, 1993).

L. List of Nationwide Permits, 33 C.F.R. Part 330 Appendix A.

M. List of Hazardous Air Pollutants (“HAPs”).

N. EPA’s PCB Spill Cleanup Policy, 40 C.F.R $761.120.

o. Collier, Shannon Rill & Scott Memorandum on EPA’s Proposed PCB Rule (September 11, 1995).

P. EPA’s 1995 Interim Enforcement Policy on Voluntary Audits, 60 Red. Reg. 16,875 (April 3, 1995).

Q. Overview Of State Environmental Audit Privilege Laws (Chart).

R. 40 C.F.R. pt. 141, subpts. F and G (Drinking Water Standards).

S. 55 Fed. Reg. 30,798, 30865-873 (July 27, 1990) (Proposed Corrective Action Levels).

T. 59 Fed. Reg. 47,980, 48,047-106 (Sept. 19, 1994) (Universal Treatment Standards). Exhibit also includes proposed amendments, primarily addressing standards for metals, 60 Fed. Reg. 43,694 (Aug. 22, 1995).

U. 40 C.F.R. $268.45 (Alternative Treatment Standards For Hazardous Debris).

V. 40 C.F.R. $261.24 (Toxicity Characteristic Thresholds).

W. Draft Soil Screening Guidance, EPA Publication No. EPA/540/R.-94/lOl (1994).

INTRODUCTION

Over the past 25 years, the field of environmental law has grown horn nearly non-existent to nearly overwhelming. Beginning with the Clean Air Act ("CM"), in 1970, and through the creation, implementation, or amendment of the Clean Water Act ("CWA"), the Toxic Substances Control Act ("TSCA"), the Resource Conservation and Recovery Act ("RCRA"), the Comprehensive Environmental Response, Compensation and Liability Act ("CERCLA"), and more, the scope of federal environmental law has expanded to fill literally thousands of pages of statutes, regulations, guidance Criteria, and other standards. Each new law and regulation adds to the layers of existing programs, creating overtime a patchwork of complex, often overlapping and sometimes even inconsistent requirements. These requirements make day-to-day compliance difflcult, but they also confound efforts to plan for substantial change, such as modifications in shipyard facilities and operations.

Suppose, for example, that a shipyard wishes to build or enlarge a graving dock or demolish or build a manufacturing building, or sell all or part of a facility at which manufacturing activity has taken place and hazardous materials have been stored or spilled. Are permits required? What if a shipyard wants to purchase and expand upon adjacent property that is contaminated? Are there ways to minimize exposure to liability? What should a shipyard manager do if contaminated soil or sediment is discovered during restoration? Which agencies must be notified? Who decides whether construction must cease until cleanup is complete? Who decides if the site is "clean" and what criteria are used to make that decision? Are more lenient cleanup standards applied if remediation is undertaken voluntarily, without prodding horn state or federal agencies? How can a facility manager obtain information about the site in advance of

construction or emediation activity without triggering enforcement concerns, disrupting manufacturing activity, or creating a "record" that might somehow be used against the facility by regulatory agencies or even private parties? What individual liability could confront a shipyard manager who fails to comply with one or more of these requirements? What sort of violations could lead to "debarment" or "suspension" of a shipyard’s right to contract with the federal government?

These and other questions should precede any shipyard activity that has environmental regulatory repercussions. This means that virtually any activity with potential to involve hazardous waste materials or contaminated media needs to be carefully planned before the first shovel hits the ground.

This Shipyard Restoration Guide is intended to help shipyards anticipate these issues and to provide a path through the regulatory maze for certain kinds of shipyard facility modifications. It is a guide for facilities that are contemplating activities that may involve excavation or handling of contaminated soil, debris or sediments, including, for example:

1. Construction of new facilities, buildings, dry docks, piers, etc.;

2. Demolition of existing facilities; and

3. Remediation, whether voluntary or not of property contaminated by handling and disposal of waste materials.

Shipyards that use this Guide will acquire a general understanding of the issues and problems that need to be anticipated and resolved before shipyard restoration activity is undertaken. However, this Guide addresses primarily federal requirements and policies. Although most state programs closely follow the federal model, each state is entitled to adopt

requirements that may differ in some respects from (and may be more stringent than) the federal requirements. Shipyards therefore should consult individual state laws, regulations, and policies before undertaking the kinds of activities described below. Local requirements may need to be reviewed as well. Finally, environmental law is a "living body" that changes continuously. Even today, Congress and the U.S. Environmental Protection Agency ("EPA") are developing important new requirements under the Clean Air Act and RCIU, and significant changes are being considered under CERCLA, the Clean Water ACL TSCA, and other statutes. Accordingly, each shipyard activity that involves potential environmental contamination and/or cleanup should be carefully planned and coordinated with advice and assistance of regulatory specialists and environmental counsel.

CHAPTER I

REASONS TO CONDUCT ENVIRONMENTAL REMEDIATION

While there are myriad reasons why facilities may decide, or be required, to investigate and remediate contamination at industrial facilities, this Restoration Guide examines three-primary scenarios under which shipyard environmental restoration may be required.

1.1 A shipyard wishes to construction expand, or modify facilities, including dry docks, piers, manufacturing buildings and other physical structures.

2. A shipyard wishes to sell or buy property that is (or may be) contaminated.

3. A shipyard wishes, or is required, to close and remediate RCRA "regulated units," "solid waste management units," or "areas of concern" or to remediate spills or leaks of hazardous substances, petroleum or polychlorinated biphenyls ("PCBS").

These scenarios present slightly different but generally overlapping issues. The issues include:

- Contaminated soil;
- Contaminated sediments;
- Contaminated debris;
- Contaminated groundwater;
- Abandoned/buried wastes -
- Presence of asbestos, or PCBS;
- The need to install, improve, or remove underground storage tanks; and
- The need to increase the discharge of pollutants to the air, or to mvigable waters, Iiom new or existing sources.

Legal/regulatory issues that may arise in connection with dealing with these issues include:

1. RCIL4 requirements for treatment, storage, or disposal or hazardous wastes;

2. RCR4 requirements for transportation of hazardous wastes;

3. RCRA requirements for corrective action;

4. Land disposal restrictions;

5. Clean Water Act requirements for the discharge of pollutants into "navigable" waters, or dredging or filling activities in such waters;

6. Clean Air Act requirements for air emissions;

7. Notification requirements for releases of hazardous substances and for asbestos removal;

8. TSCA requirements for remediation of PCBS;

9. CERCLA liability;

10. Spill reporting requirements under various statutes;

11. The need to conduct environmental audits, but also protect the infornnation gathered during the audit

12. Enforcement and other issues of corporate and individual liability;

13. "Brownfields" programs that limit liability or otherwise provide incentives to purchase or voluntarily clean up contaminated property; and

14. Negotiating with regulators concerning the timing, scope, and other issues related to shipyard restoration.

These and other issues are addressed in the chapters below.

CHAPTER II

THE LEGAL FRAMEWORK FOR SHIPYARD ENVIRONMENTAL RESTORATION

As noted above, shipyard restoration activities could trigger or otherwise involve requirements under any of several environmental statutes. The most common issues will likely fall under RCRA, CERCLA, the Clean Water Act the Clean Air Act, and TSCA. These statutes, and their likely application to shipyard restoration, are addressed in this chapter.

Related issues including enforcement auditing, "Brownfields" incentives, and negotiations are addressed in the following chapters.

A. THE RESOURCE CONSERVATION AND RECOVERY ACT

The Resource Conservation and Recovery Act may be the most far-reaching and complex environmental statute. It is also the statute that is likely to have the greatest application to shipyard restoration activities.

RCRA regulates "hazardous" wastes from "cradle to grave," by imposing management requirements on:

- "generators" of hazardous waste;
- "transporters" of hazardous waste; and
- facilities that "treat, store, or dispose" hazardous waste ("TSD facilities").

To be considered a "hazardous waste," a material must first fall within RCRA'S definition for "solid" waste. Solid wastes are broadly defined as "any discarded material, including solid, liquid, semisolid or contained gaseous material resulting from industrial operations . . . " RCRA $ 1004(27),42 U.S.C. $ 6903(27). Thus, although perhaps counter-

intuitive, the term "solid waste" includes liquids and, in some cases, even contained gases, provided that the materials have been discarded.

A solid waste falls within the subset of "hazardous wastes" if it:

- is specifically "listed" by EPA (in the Code of Federal Regulations at 40 C.F.R. Part 261); or
- fails RCIU4'S tests for any one of the following four criteria for "characteristic" hazardous waste: corrosivity, ignitability, reactivity, or toxicity.

40 C.F.R. $261.3. A "mixture" of a listed hazardous waste with soil or debris, as well as waste residues "derived from" the treatment of a listed hazardous waste, remains regulated as the listed hazardous waste. Id. $$ 261.3 (a)(2)(iv), 261.3(c)(2)(i). Mixtures of characteristically hazardous waste and soil or debris are hazardous waste only if the mixture also exhibits a hazardous characteristic. RCRA'S "hazardous waste" provisions are contained within Subtitle C of the statute, and the wastes are often referred to as "Subtitle C" wastes.

RCRA also regulates underground storage tanks ("USTS") that are used to store "regulated substances." The UST requirements are contained in "Subtitle I" of RCRA. The term "regulated substances" includes petroleum as well as all hazardous substances other than those that are regulated as hazardous wastes under Subtitle C. RCIL4 $ 9001(2), 42 U.S.C. $ 6991(2).

There are many scenarios under which the restoration of a shipyard could trigger RCRA regulatory requirements. For example, during construction of a new building or pier, a shipyard might generate a variety of hazardous wastes (e.g., waste solvents, oils, contaminated soil or sediments), thereby subjecting the shipyard to RCRA "generator" requirements. If these hazardous wastes are shipped offsite (either by the shipyard or an independent contractor), RCRA "transporter" standards would be triggered. Furthermore, if a shipyard keeps hazardous wastes

onsite for more than 90 days after stopping part of its operations, it may come within the deftition of a "treatment, storage, or disposal" facility and need to obtain a RCRA permit. Finally, if a UST is installed as part of a restoration project (or if an existing UST has to be repaired or removed), the shipyard would have to ensure compliance with RCRA's UST standards.

1. Generator Requirements

A "generator" is any person whose actions or processes produce a hazardous waste, or whose actions first cause a hazardous waste to become subject to regulation. 40 C.F.R. $261.10. A generator of "solid wastes" must use either "generator knowledge" or conduct analytical tests to determine whether these wastes are regulated as "hazardous wastes." See id. $262.11. Failure to properly identify waste as hazardous could subject a facility to civil penalties or other sanctions.

Generators of hazardous waste must obtain an EPA generator identification number and include it on a uniform hazardous waste manifest that tracks a waste from the point of generation, through transportation, storage, treatment and disposal, i.e., horn "cradle to grave." A copy of the form is included in the regulations, 40 C.F.R. Part 262 App. A, and is attached hereto as Exhibit A. The form identifies the information that is needed (e..g., the name and EPA I.D. numbers of each authorized transporter and the TSD facility designated to receive the waste). It also requires that the generator certify that it has "a program in place to reduce the volume and toxicity of waste generated to the degree . . . determined to be economically practicable . . . " Exhibit A.

Generators disposing wastes out-of-state will likely need to use a manifest form supplied by the receiving state. If the receiving state does not provide a manifest form, the generator must use the form provided by its own state.

A generator is responsible for ensuring that any hazardous waste it generates is properly stored in an appropriate hazardous waste container. Hazardous wastes can be shipped off-site only if properly packaged and Iabelled. Finally, generators must perform various recordkeeping and reporting requirements and develop contingency plans in case of an emergency. These requirements are detailed in 40 C.F.R. Part 262.

A planned excavation activity ordinarily would not add any new federal “generator” requirements or obligations, as long as it does not produce any newly generated hazardous wastes (e.g., Ieachate). If possible, a facility should determine whether it has met all of its "generator" requirements (e.g., packaging, labeling, recordkeeping) and complied with the applicable land disposal restrictions ("LDRs"). The LDRs provide that hazardous wastes can be landfilled only after first being treated to meet specific universal treatment standards. These standards are based on the application of best demonstrated available technology ("BDAT") and are discussed more fully in Section VI.D.3, below. Generators must include the applicable universal treatment standards for the waste on the manifest. Id.$ 262.20(a). To avoid potential liability (under either RCRA or CERCLA), a generator should make sure the hazardous waste it generates is

---

1/ Special manifest procedures must be followed for international shipments of hazardous waste. See 40 C.F.R. $262.54.

treated to meet the applicable universal treatment standards and subsequently disposed at an appropriate permitted laudfill.~

If a shipyard has complied with the regulations governing generators of hazardous waste and the shipyard intends to excavate a piece of property, the shipyard should document its record of proper compliance prior to the excavation.

2. **Transporter Requirements**

RCRA'S transporter provisions govern not only the commercial hazardous waste hauler, but any person who transports hazardous waste offsite from the location where the hazardous waste is generated. Thus, a shipyard that uses its own vehicles to transport a hazardous waste offsite is subject to EPA's transporter requirements. These requirements, which are codified at 40 C.F.Il. Part 263, cover recordkeeping, transport, manifesting, and spill cleanup. Again, these requirements must be reviewed before shipyards transport any waste off-site.

Because of the burdens of these requirements -e.g., all transporters must obtain an EPA identification number before transporting hazardous wastes, and must keep records for three years, 40 C.F.R. $263.11 and .22-- most shipyards will want to hire independent contractors to haul their hazardous wastes off-site.~'

~1 Listed hazardous wastes can be lantillled only at a permitted hazardous waste landfill. Characteristic wastes that have been properly treated (so that they no longer exhibit a hazardous characteristic) may be land.filled at a non-hazardous waste landfill.

3/ To avoid risk of later Iiabilities, shipyards will want to ensure that any transporters they use are reliable because, as "generators" of hazardous wastes, shipyards might be held jointly and severally liable under the Superfund statute ("CERCLA," discussed in Section 11.B) if the wastes are brought to a poorly managed disposal site, even if the transporter had been instructed to carry the wastes to a different site. E.g., United States v. Hardage, 761 F. Supp. 1501 (W.D. Okla. 1990).

3. **General TSD Facility Requirements**

If a facility treats, stores, or disposes[4] of hazardous wastes, it must obtain a RCRA permit (or qualify for what is known as "interim status"), and comply with minimum national standards for the management of hazardous wastes. These standards govern such things as facility design, construction, operation, maintenance, financial assurance, notification, reporting, corrective action, closure, post-closure, and more. w 40 C.F.Il. Part 264; see also Part 265 (applicable to "interim status" facilities). The RCRA permit application process is divided into a "Part A" application (which requires certain basic information about the facility), and a "Part B" application (which requires more extensive information including financial assurance and a

---

4/ The word "treatment" is defined broadly to include:

> [A]ny . . . process . . . designed to change the physical, chemical, or biological character or composition of any hazardous waste so as to neutralize such waste, or so as to recover energy or material resources from such waste, or so as to render such waste non-hazardous, or less hazardous; safer to transport, store or dispose of; or amenable for recovery, amenable for storage, or reduced in volume.

40 C.F.R. $260.10. The term "storage" means:

> [T]he holding of hazardous waste for a temporary period, at the end of which the hazardous waste is treated, disposed of, or stored elsewhere.

Id., Finally, the term "disposal" includes:

> [T]he discharge, deposit, injection, dumping, spilling, leaking, or placing of any solid waste or hazardous waste into or on any land or water so that such solid waste or hazardous waste or any constituent thereof may enter the environment or be emitted into the air or discharged into any waters, including ground waters.

Id., However, the term "disposal facility" extends only to facilities where hazardous waste is "intentionally placed into or on any land or water, and at which waste will remain after closure," id., and thus would not reach facilities where "disposal" was caused by unintentional acts such as spills.

closure and post-closure plan). Once a facility has been permitted the standards are incorporated into its RCRA permit.

Depending on the specific activities at a shipyard, units that may cause a shipyard or other of its facilities to qualify as a treatment, storage, or disposal "facility" include: a container storage area; a waste treatment or storage area; an industrial furnace or boiler; a surface impoundment a landfill or waste pile; and any one of several other miscellaneous units. Shipyards with ongoing manufacturing operations that merely generate hazardous wastes can avoid RCRA'S onerous permitting obligations as long as they do not "treat" "store," or "dispose" of the waste on site. A "large volume generator" of hazardous wastes — defined as a facility that generates over 1,000 kilograms ("kg") of hazardous waste per month (a category into which most shipyards would fall)— may accumulate hazardous waste on-site for up to 90 days without a RCRA permit, as long as the waste is placed in appropriate hazardous waste containers or tanks. See id. $ 262.34(a).

If, as a hazardous waste generator, a shipyard exceeds this 90-day accumulation period the shipyard can either file for a RCRA TSD permit or if the shipyard qualifies, file for a 30-day extension. A 30-day extension maybe granted if the wastes must remain on-site for longer than

~1 Most shipyards would be "large volume generators" in part because EPA has interpreted the regulations as applying to the total of all hazardous waste generated at a facility. The term "facility" refers to "all contiguous land, and structures, other appurtenances and improvements on the land." 40 C.F.R. $261.10.

6/ Small quantity generators have longer accumulation periods. Companies that generate less than 100 kg of hazardous waste per month (known as "conditionally exempt small quantity generators") generally do not have any accunudation time limit. See 40 C.F.R. $261.5. Generators of 100 to 1000 kg of hazardous waste per month may accumulate hazardous wastes on-site for up to 180 days without a permit. See id. $ 262.34(d).

90 days because of unforeseen, temporary, and uncontrollable circumstances. See id. $ 262.34(b). Otherwise, the shipyard is out of compliance with the RCRA hazardous waste storage regulations and must file for a RCR4 TSD permit as soon as possible, or must negotiate some resolution with EPA or a delegated state agency.

Depending on the history of the manufacturing unit and after holding hazardous waste on site for more than 90 days, a shipyard would require a permit either as an "interim status" storage facility, 40 C.F.R. Part 265, or as part of the permanent RCRA program, 40 C.F.R. Part 264. Technically, under the permanent RCRA program the shipyard would have to submit a Part A and a Part B permit application together, as soon as the 90-day accumulation period expired. 46 Fed. Reg. 60,446, 60,447-448 (Dec. 10, 1981). If a shipyard does not come to realize its requirement to file an application for a TSD permit until atler the 90-day accumulation period has passe~ the shipyard will be out of compliance and should seek counsel to consider meeting with the appropriate state or federal agency to negotiate a resolution.

However, a shipyard that accumulates waste for more than 90 days could quality for "interim status" as a RCRA storage facility if it meets three conditions (1) the shipyard was in existence on November 19, 1980, or on the effective date of statutory or regulatory changes that render the facility subject to RCRA'S permitting requirements; (2) the shipyard complied with the notification provision of Section 3010(a) of RCRA (requiring a person who generates or manages a hazardous waste to file a notification with EPA of their hazardous waste activities); and (3) the Part A permit application is submitted within 30 days after the facility became a "storage" facility (i.e., within 30 days after the hazardous waste has accumulated for 90 days). 42 U.S.C. $ 6925(e); 46 Fed. Reg. at 60,447. Interim status commences once the three renditions

are satisfied – EPA is not required to approve the Part A application for interim status to apply. 40 C.F.R $ 270.70(a).

a. **Closure and Post-Closure Requirements**

(1) **RCRA Permitted Facilities**

Each RCRA permit must include an approved plan to govern the closure and post-closure care of each permitted hazardous waste unit or facility. Closure plans must include, in part, a detailed description and implementation schedule of the specific steps that will be undertaken to remove or decontaminate all hazardous waste residues and contaminated equipment, structures and soils. For a more complete list of the applicable closure requirements, see 40 C.F.It. $264.112 attached as Exhibit B.

A treatment or storage facility can generaIly undertake "clean closure" by decontaminating all equipment, removing all hazardous wastes and residues from a site, and certifying that there is no evidence of groundwater contamination from the particular unit. If the treatment or storage unit is not properly closed and leaves hazardous waste in place, then the unit becomes a hazardous waste "disposal" facility.

By contrast, a hazardous waste disposal facility generally will implement a "closure in place," because the unit leaves hazardous waste or residue at the site. When a facility closes a unit with waste left in place, it must adopt and implement a "post-closure care" plan. Such a plan must meet certain minimum federal standards, including monitoring and maintenance requirements for a period of 30 years after the "closure in place" of a permitted unit. $$264.117-120.

Because a permitted TSD facility's closure plan will have been approved during the permitting process, the TSD facility does not have to resubmit the closure plan to EPA before restoration (or closure) activities can begin. However, a permitted TSD facility must begin and complete the implementation of an approved closure plan within a specified period of time. Generally, closure must begin within 30 days after the permitted hazardous waste management unit receives the final volume of hazardous waste. See id. $ 264.112(d)(2). Closure must be comuleted within 180 days of receiving the final volume of hazardous waste. See id., $ 264.113(b). In addition, the TSD facility has only 90 days from receipt of the final volume of hazardous waste to complete the treatment, disposal or removal of all hazardous wastes. See id. § 264.113(a). The EPA Regional Administrator can extend these time limits if a facility demonstrates sufficient need, but facilities must apply for such an extension. A disposal facility that retains the capacity to receive additional hazardous wastes may also obtain an extension.

(2) **Interim Status Facilities**

To close a hazardous waste management unit at an interim status storage facility, the shipyard must submit a closure plan. Depending on the types of hazardous waste units involved (e.g., tanks, container storage, waste pile, landfill), the shipyard must give EPA either 45 or 180 days to review the closure plan before the shipyard can "clean close." M $ 265.112(d). The interim status storage facility has only 90 days from approval of the closure plan to complete the treatment, disposal or removal of all hazardous wastes, and closure must be completed within 180 days of receiving approval of the closure plan. See id. $ 265.113(a) and (b). Again, the EPA Regional Administrator can extend these time limits if a facility demonstrates sufficient need, but a facility must apply for such an extension.

If EPA accepts the closure plan and the shipyard adequately "clean closes' the storage facility, the need for a Part B application will be obviated and the shipyard will not become a TSD facility on a "permanent" basis. However, if the storage faciiility is not adequately “clean closed,” then the unit becomes a disposal facility and must comply with the regulations for post-closure care. Parts 264 and 265. These will ultimately require the shipyard to become a RCRA disposal facility on a "permanent" basis (described above).

b. Financial Assurance Requirements

Permit standards are burdensome, requiring, among other things, a facility to submit financial assurance as well as closure and post-closure plans. A shipyard can meet the financial assurance requirement with a corporate guarantee if the shipyard passes RCRA's stringent financial test. However, if the shipyard does not pass RCRA’S financial test, the shipyard must bear the significant annual costs of securing a financial instrument (trust fund surety bond, letter of credit, or insurance) as a guarantee of funds for closure and post-closure care. The financial assurance requirements often impose a tremendous economic burden on a facility by tying up millions of dollars in financial guarantees.

c Corrective Action Requirements

By becoming a RCRA-permitted storage facility, a shipyard will be subject to the corrective action provisions under RCRA $ 3004(u), 42 U.S.C. $ 6924(u). RCRA $ 3004(u) requires corrective action for all releases of hazardous wastes or constituents from any “solid waste management unit” (“S W’) at a TSD facility, regardless of when the waste was placed in the S W’MU. 40 C.F.R. $$ 264.90(a) and 264.101.

A SW is defined as any unit at a facility "from which hazardous constituents might migrate, irrespective of whether the units were intended for the management of solid and/or hazardous wastes." H.R Rep. No. 198, 98th Cong., 2d Sess., pt. 1 at 60 (1983). As noted above, the term "solid waste" is defined broadly to apply to discarded liquids and some discarded contained gases. 42 U.S.C. $ 6903(27). The broad definition of solid waste has allowed a broad interpretation of SWMUS. Therefore, if a shipyard closes a manufacturing unit that generates hazardous waste and inadvertently brings the facility within RCRA'S TSD requirements, then the shipyard could become subject to corrective action for all the shipyard's S WMUs. Since a shipyard is likely to have a number of SWMUS, closing a manufacturing unit could become more costly than planned if it triggers corrective action requirements.

4. **Particular Shipyard Restoration Problems**

A shipyard could become a TSD facility if, during restoration, it is required to remediate soil or other media that are contaminated with hazardous constituents, or it fails to take certain steps that might avoid its becoming a TSD facility (outlined below).

In general, hazardous wastes that were legally disposed at a facility prior to 1980 are not subject to RCRA regulation unless they are subsequently "actively managed." 45 Fed. Reg. 33,066, 33,068 (May 19, 1980). However, courts have upheld EPA's broad interpretations of what constitutes "active management." For example, a specialty steel company disposed in a landiill a waste that was subsequently identified as a RCRA "hazardous waste." The court held that the leachate derived from the landfill was "newly generated" and therefore a regulated "hazardous waste." See Al Tech Specialty Steel Corp., V. EPA. 674 F. Supp. 72, 73 (N.D.N.Y. 1987), aff'd, 846 F.2d 158-60 (2d Cir. 1988). The court concluded that a surface impoundment

that stored this leachate was "actively storing " a regulated hazardous waste and was therefore subject to RCRA regulation and permitting requirements.

Thus, while the placement or disposal of hazardous wastes prior to 1980 would not be subject to RCRA regulation the “active management” of pre-existing hazardous wastes could trigger the application of RCRA regulations (including LDRs).

a. Re-Deposition of Excavated Waste

Even though the mere act of excavating soil contaminated with pre-existing hazardous wastes could constitute “active management,” it probably would not trigger RCRA requirements as long as the excavated material is redeposited in the same area or unit without first being “stored” or “treated,” and as long as the excavation does not “generate” any new wastes.

EPA has determined that movement of wastes within the same “area of contamination” (“AOC”) of a site does not constitute “land disposal,””storage,” or “treatment” and therefore does not trigger RCRA’S management requirements as long as no new wastes are generated. See Exhibit C (June 11, 1992 EPA Letter). In February 1993, EPA broadened this concept in a final regulation that implemented a portion of the Corrective Action regulations under Subpart S. 40 C.F.R. pt. 264, subpt. S, $264.552. In this rule, EPA adopted the concept of a “Corrective Action Management Unit” or “CAMU.” Wastes that are handled within a CAMU will not trigger LDRs or other disposal requirements. Furthermore, wastes can be excavated from a CAMU, treated in a non-land based unit (such as a tank), and redeposited into a CAMU. Thus,

---

7/ In reaching its conclusion, EPA relied on a 1990 Federal Register notice that addressed when remedial action at a CERCLA site constitutes “land disposal.” See 55 Fed. Reg. 8,666, 8,758 (March 8, 1990). In the notice, EPA stated that movement of contaminated soil or waste within the same land disposal unit or AOC does not constitute “placement into a land disposal unit.” Consequently, such activity would not constitute RCRA regulated “land disposal.”

a shipyard should be able to excavate and re-deposit contaminated soil within the same AOC or CAMU without triggering RCRA hazardous waste "disposal" requirements. However, if a facility removes contaminated soil from the AOC or CAMU and places that soil on or into a separate on-site treatment or storage unit then the placement of the soil (as well as any storage preceding such placement) could become subject to RCRA regulation. For example, hazardous wastes that are removed from the AOC (potentially including contaminated soil and debris) would have to be treated to meet applicable disposal standards (discussed in Chapter VI) before they could be disposed at a permitted hazardous waste landfill.

b. Shutdown Of Manufacturing Operations: Clean Closure and Permitting

When ceasing (or planning to cease) manufacturing operations, shipyards must consider RCRA'S closure and permitting requirements to avoid becoming a TSD facility. If a shipyard shuts down one of its manufacturing units that generates hazardous waste(e.g., metal plating and

---

~1 Generally, state RCRA requirements closely mirror the federal requirements discussed above. However, some states have taken a more conservative approach and determined that if hazardous wastes or contaminated soil are excavated with the intent to ultimately remove those wastes outside of the AOC, the materials would be "newly generated" at the moment they were excavated. If such wastes were determined to be hazardous wastes - either through generator knowledge or waste analysis - they would be subject to RCRA hazardous waste regulation at the moment that such a determination was made. Other states have adopted an even more conservative approach, and generally consider all wastes and contaminated soil to be "newly generated wastes" when excavated regardless of whether they are or are intended to be redeposited in the same AOC. These states require all excavated material determined to be hazardous to be stored in an appropriate container or roll off box and not on the land.

On the other hand many states have adopted a more flexible approach by regulating only excavated and newly generated materials that exhibit a hazardous waste characteristic, and not regulating listed wastes disposed prior to 1980. This policy has generally been adopted because it would be difficult to identify whether old excavated wastes were "derived from" a listed hazardous waste.

surface treating operations, machining and metalworking operations, or decreasing operations), the shipyard could become subject to permit and closure requirements as a RCRA hazardous waste storage facility.

The shipyard may store the waste for only 90 days before the shipyard will be considered a "storage" facility and require a permit. See 40 C.F.R. $262.34. Hazardous waste generated in a "manufacturing process unit" (such as a metal plating or surface treating unit) is not considered to begin to "accumulate" (and the storage period does not begin to run) until it exits the unit in which it was generated. Id. § 261.4(c). **An** exception to this rule appIies where, as might happen in the course of restoration, the unit ceases to operate. In such a circumstance, the waste storage period commences, and the waste is considered to accumulate, as soon as operations cease.[9/] If the shipyard fails to adequately clean the manufacturing process unit and leaves hazardous waste in the unit for over 90 days after ceasing operations, then the unit could become a hazardous waste storage facility. Id. § 262.34.

Therefore, to avoid RCRA permitting requirements, a facility should remove all hazardous wastes from a manufacturing process unit and ship them off-site for proper treatment storage or disposal within 90 days of when the wastes exit the unit or of when the unit ceases operation.[10/] If it is impossible to accomplish this task within the 90-day accumulation period, the facility

---

9/ Although an argument can be made, based on an August 1987 EPA RCRA/Superfund Hotline Monthly Summary attached as Exhibit D, that a hazardous waste does not become subject to RCRA storage permitting requirements until 180 days after a manufacturing process unit ceases operation, its success is uncertain.

10/ If the facility intends to recycle the residues of a manufacturing process, it may be able to argue that the residues are not "solid wastes." See 40 C.F.R.§ 261.2. In such a case, the generator may keep the residues on site for up to one year, as long as 75 percent of the residues are recycled within the next calendar year.

should seek an extension in writing from the designated regulatory authority (which could be state or federal). A 30-day extension may be granted if the wastes must remain on-site for longer than 90 days because of unforeseen, temporary and uncontrollable circumstances. See id. § 262.34(b).

In sum, a shipyard's decision to close a manufacturing unit that was not subject to a RCRA permit during operations could trigger RCRA closure requirements for the shipyard after the unit closes. Because of the regulatory burdens imposed by the permitting programs, shipyards should take all steps possible (such as not accumulating wastes for more than 90 days and meeting all the generator requirements addressed in Section II.A.1, above) to avoid requiring a permit.

Before a shipyard shuts down a manufacturing operation that generates hazardous waste, the shipyard facility must carefully consider the closure requirements and potential regulatory consequences of the shutdown. If a shipyard is a RCRA-permitted TSD facility, it will be subject to closure requirements pursuant to its permit. These closure requirements are ordinarily spelled out in the permit itself. Alternatively, if the shipyard is only a generator of hazardous waste, the shipyard will want to ensure that it does not inadvertently become subject to RCRA storage requirements by accumulating hazardous waste for more than 90 days. Otherwise, the shipyard will probably need to obtain a RCRA storage permit and face all of the regulatory burdens of the permitting process.

5. Underground Storage Tanks

As noted above, RCRA also regulates underground storage tanks that are used to store regulated substances. The UST requirements are contained in "Subtitle I" of RCRA The term "regulated substances" includes petroleum e.g., gasoline, diesel fuel, and used oil) as well as all

hazardous substances other than those that are regulated as hazardous wastes under Subtitle C. RCRA § 9001(2).

EPA's UST regulations are codified at 40 C.F.R. Parts 280 and 281 and apply to any person who owns or operates a UST or UST system. Tank owners are responsible for complying with the technical, corrective action and financial responsibility requirements set forth in the statute and regulations. These same requirements apply to any person who "operates" a UST or UST system. An "operator" is "any person in control of, or having responsibility for, the daily operation of the underground storage tank." RCRA § 9001(4). Thus, the owner and operator may be different persons, and each owner and operator has obligations under the statute and regulations.

The UST technical standards of 40 C.F.R. Part 280 include:

- Design construction installation and notification requirements (including performance standards for new UST systems and upgrading of existing UST systems);
- General operating requirements (including spill and overfill control, corrosion protection reporting and recordkeeping);
- Release detection and reporting; and
- Temporary and permanent closure of out-of-service UST systems.

To prevent tank leaks, EPA requires UST owners and operators to ensure that their tanks are protected against corrosion and epuipped with devices that prevent mills and overfills no later than December 22.1998. 40 C.F.R. §280.21. Tanks that were installed prior to December 22, 1988 must be closed, replaced or upgraded with corrosion protection and spill and overfill prevention devices to bring them up to the Agency's new-tank standards by this December 22,

1998 deadline. Corrosion protection upgrades are made by adding cathodic protection, interior lining the tank or both. See id. §280.21.

New tanks – that is, those USTs installed after December 22, 1988 – must be fiberglass-reinforced plastic, corrosion-protected steel, or a composite of these materials and must be designed constructed and installed in accordance with the code of practice developed by a nationally-recognized association or independent testing laboratory. id. $280.20. The owner of a new UST or UST system must notify the designated state agency of the existence of such tank or tank system within 30 days after it is brought into use. id. $280.22. EPA's upgrading requirements and new tank standards also apply to any connected piping that is in the ground and routinely contains product. id. §§ 280.20(b) and 280.21(c). All UST owners and operators must ensure that releases due to spilling or overfilling do not occur during product transfer and that all steel systems with corrosion protection are maintained, inspected and tested in accordance with 40 C.F.R. §280.31.

In addition to meeting EPA's leak prevention requirements, tank owners and operators must use one or more designated leak detection methods for detecting releases from portions of **both tanks and piping that routinely contain product. Id. 40 C.F.R. §§ 280.43 and 280.44. All** USTsor UST systems that were in the ground as of December 22, 1988 had to have a method of leak detection in place no later than December 22, 1993. EPA phased in compliance with the leak detection requirements for these existing tanks over a five-year period based on the tank's age. The oldest tanks, which EPA believed were the most likely to leak, had the earliest compliance deadlines. id. § 280.40(c). New tank systems are required to comply with EPA's

release detection requirements upon installation. id. §280.40. Thus, all USTs and UST systems shouId now be in compliance with the release detection requirements.

EPA allows owners and operators of petroleum USTs to use at least one of seven approved leak detection methods, or other methods approved by their state agencies:

> (1) Secondary containment and interstitial monitoring;
>
> (2) Automatic in-tank gauging systems;
>
> (3) Vapor monitoring in the soil around the tank and piping
>
> (4) Groundwater monitoring at strategic locations near the tank and along piping runs;
>
> (5) Statistical inventory reconciliation;
>
> (6) Manual tank gauging on tanks 2,000 gallons or smaller and
>
> (7) Daily inventory control combined with annual tank tightness testing (this method can be used only for ten years after installation or upgrade of a UST. After ten years, one of the leak detection methods listed above in 1 through 5 must be used).

id. $280.43.

Leak detection is also required for piping. Pressurized piping needs automatic line leak detectors, along with groundwater monitoring, vapor monitoring, secondary containment and interstitial monitoring, or an annual tightness test of the piping. id. §280.44. Suction piping needs no leak detection if it meets specified design requirements. Otherwise, suction piping must be tightness tested every three years or use groundwater monitoring, vapor monitoring, statistical inventory reconciliation or secondary containment with interstitial monitoring. id. § 280.41(b)(2).

UST owners and operators must report to the designated state agency within 24 hours, or another reasonable time period specified by the agency, the discovery of any released regulated substances or any suspected release. id. §280.50. Unusual operating conditions or monitoring results indicating release also must be reported. Records on leak detection performance and upkeep must be maintained. id. §280.45.

UST owners or operators who would like to take their tank or tank systems out of operation must either temporarily or permanently close them in accordance with 40 C.F.R. Part 280, Subpart G. When USTs or UST systems are temporarily closed, owners and operators must continue operation and maintenance with corrosion protection and unless all USTs have been emptied, release detection. If temporarily closed for three months or more, the UST system's vent lines must be left open and functioning, and all other lines, pumps, manways, and ancillary equipment must be capped and secured. After one year, UST systems that do not meet either the performance standards for new tanks or the upgrading requirements, excluding spill and overfill device requirements, must be permanently closed, unless a site assessment is performed and an extension is obtained form the state implementing agency. See id. §280.70.

Before a tank is permanently closed, the UST owner or operator must notify the regulatory authority 30 days before the tank is removed or closed in place. id. § 280.71(a). In addition the owner or operator must determine if the tank has leaked and, if so, take appropriate notification and corrective action. In addition the UST must be emptied and cleaned and either removed from the ground or left in place and filled with an inert solid material. id. § 280.71(b). Because of safety concerns with the closure of USTs, EPA recommends that owners or operators follow industry-developed recommended practices.

As discussed above, there are numerous notification, reporting and recordkeeping requirements throughout EPA's UST regulations. Owners and operators need to pay close attention to these requirements, particularly because enforcement of these regulations largely is conducted through an examination of records.

UST owners and operators are required by EPA to investigate, confirm and respond to confirmed releases as set forth in the regulations at 40 C.F.R. §§280.51 through 280.67. These requirements include, where appropriate:

- Confirming a suspected release by conducting tests to determine if the UST or UST system is the source of a leak or an off-site impact
- Notifying the appropriate agencies of the release within a specified period of time;
- Taking immediate action to prevent any further release, such as emptying the tank,
- Containing and immediately cleaning-up spills and overfillls;
- Monitoring and preventing the spread of contamination into the soil and/or groundwater;
- Conducting more detailed investigations about the nature and extent of the release;
- Removing free product on groundwater to the maximum extent practicable;
- Developing and submitting a detailed corrective action plan for remediation, and
- Conducting soil and/or groundwater remediation.

One of EPA's top priorities in the UST program is to make clean-ups faster, cheaper, and more effective. The Agency is encouraging state UST implementing agencies to use a risk-based

decision-making process to make decisions about corrective action technologies and site management. EPA encourages UST owners and operators to consult the American Society for Testing and Materials ("ASTM") Emergency Standard "Guide for Risk-Based Corrective Action Applied at Petroleum Release Sites" (ASTM ES-38-94).

EPA's financial responsibility regulations require that UST owners or operators demonstrate the ability to pay the costs of corrective action and to compensate third parties for injuries or damages resulting from the release of petroleum from USTs. Id. Part 280, Subpart H. All petroleum UST owners or operators must maintain an annual aggregate of financial assurance of $1 million or $2 million depending on the number of USTs owned. Id. § 280.93(b). Petroleum marketers and UST owners that handle an average of more than 10,000 gallons of petroleum per month based on annual throughput for the previous calendar year must also demonstrate $1 million in per-occurrence financial responsibility. Id. § 280.93(a)(l). All other UST owners have a $500,000 per occurrence limit. Id. § 280.93(a)(2).

Financial assurance options available to UST owners or operators include:

- Purchasing commercial environmental impairment liability insurance;
- Demonstrating self-insurance;
- Obtaining guarantees, surety bonds or letters of credit;
- Placing the required amount of financial responsibility into a trust fired administered by a third party; or
- Relying on coverage provided by a state assurance fund.

Id. §280.94. All but a handful of states have developed state tank trust funds that provide some or all of the financial responsibility required by EPA. Thus, it is important to determine the extent of state fired coverage in the state in which the shipyard is located. Moreover, it is important to determine the "health" of the fund as an actual risk transfer mechanism.

EPA's petroleum UST financial responsibility regulations also specify reporting and recordkeeping requirements. See id. $$280.110 and 280.111.

RCRA Subtitle I allows state UST programs approved by EPA to operate in lieu of the federal regulations. EPA has set forth the standards that state UST programs need for Agency approval at 40 C.F.R. Part 281. State programs must be at least as stringent as the federal standards, contain provisions for adequate enforcement and regulate at least the same USTs as are regulated under EPA's regulations. 40 C.F.R. Part 281.

As of September 7, 1995, the following 21 states have EPA-approved UST programs: Arkansas, Connecticut Georgia Iowa Kansas, Louisiana, Maine, Maryland Massachusetts, Mississippi, Nevada New Hampshire, New Mexico, North Dakota, Oklahoma, Rhode Island South Dakota Texas, Utalh Vermont and Washington. In addition, 16 states have submitted drafts of state UST program approval applications that EPA regional offices currently are reviewing.

B. CERCLA

Passed in 1980 and amended substantially in 1986, the Comprehensive Environmental Response, Compensation and Liability Act may also come into play before, during, or even after a shipyard's restoration activities.

CERCLA’S "reporting" requirements — which are contained in Section 103 of CERCLA, and in Section 304 of that part of CERCLA known as the Emergency Planning and Community Right-To-Know-Act (or "EPCRA") – mandate that shipyards report the release of any "hazardous substances" or "extremely hazardous substances" that exceed certain regulatory volumes, known as "reportable quantities" ("RQs"). Significantly, civil and even criminal penalties may follow from non-compliance with these requirements.

CERCLA’S "response" action requirements govern actions that either EPA or private parties may take in the event of a release of hazardous substances. They also set the standards under which private shipyards may (in some circumstances) recover their cleanup costs from third parties (such as prior owners of the site or, in some cases, from the government).

1. Spill Reporting

CERCLA Section 103 and EPCRA Section 304 impose reporting requirements for any release of a "hazardous substance" or an "extremely hazardous substance" from a shipyard or other facility. Therefore, the reporting requirements for both CERCLA and EPCRA should be reviewed whenever there is a release of any substance that could qualify as "hazardous"or "extremely hazardous."

a. Reporting Releases Of Hazardous Substances Under CERCLA Section 103

Under CERCLA’s Section 103, any person in charge of a shipyard or other facility is required to notify the federal National Response Center (800-424-8802), whenever there is a

release[11/] of a hazardous substance[12/] equal to or greater than the RQ (measured within a 24-hour period) listed for that particular substance. 42 U.S.C. §§ 9603(a), 11004; 40 C.F.R. §§ 302.6,355.40. The owner or operator of a shipyard or other facility at which a release occurs must also notify potentially injured parties by publication in local newspapers. 42 U.S.C. §9611(g).

The list of hazardous substances and their respective RQs is set forth at 40 C.F.R $302.4, attached hereto as Exhibit E. RQs range from 1 pound to 5,000 pounds. Generally, hazardous substances that are not specifically listed have an RQ of 100 pounds, with the following limited exceptions:

- Unlisted hazardous wastes that fail the RCRA test for toxicity (See Section II.A.) have the RQ listed in Table 302.4 for the contaminant on which the characteristic of EP toxicity is based. See 40 C.F.R § 302.5(b). Thus, if a waste is considered toxic because it leaches too much arsenic, then the RQ for arsenic (1 pound) would apply. The RQ applies to the waste itself, not merely to the toxic contaminant. If the waste fails the toxicity test on the basis of more than one contaminant the RQ for that waste is the lowest of the RQs for the various contaminants. If an unlisted hazardous waste fails the test for toxicity and one or more of the other "characteristic" tests for RCRA hazardous wastes (ignitability, corrosivity, or reactivity) referenced in 304.2(b), the RQ for that waste is the lowest of the applicable RQs. Id.

11/ CERCLA defines the term "release" to mean "any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping or disposing into the environment." 42 U.S.C. § 9601(22). However, the term does not apply to releases in compliance with a federal permit (42 U.S.C. § 9601(1O)); continuous releases incidental to normal operations or treatment (40 C.F.R § 302.8); or releases that do not reach the air, water, or soil.

12/ CERCLA defines a "hazardous substance" to include any substance designated as hazardous or otherwise regulated under Sections 307(a) and 311(b)(2)(A) of the Clean Water Act, Section 3001 of RCRA (with certain exceptions), Section 112 of the Clean Air Act, Section 7 of the Toxic Substances Control Act, or Section 102 of CERCLA. 42 U.S.C. § 9601(14). Petroleum and natural gas are generally excluded from this definition.

- Where a release is in the form of a mixture, notification is required where the release exceeds the applicable RQ of any hazardous constituent in the mixture. Id. § 302.6(b). If the quantity of one or more of the constituents in the mixture or solution is unknown, notification is required where the total amount of the released mixture or solution equals or exceeds the RQ for the hazardous constituent with the lowest RQ. Id.

Significantly, if the type or amount of the release cannot be readily ascertained, shipyards may likely still be obligated to report the release. Counsel should be consulted in such an event.

In addition, by June 9, 1981, past and present owners or operators of facilities at which RCRA-regulated "hazardous wastes" "are or have been stored treated, or disposed" — other than facilities that have obtained a RCRA permit *or* that qualify for "interim status," See Section II.A.3, above — were required to notify EPA of the existence of the facility and to specify the amount of any hazardous substances found there, as well as any known suspected, or likely releases of such substances, regardless of when the waste was placed on the ground. CERCLA Section 103(c); see Exhibit F (December 1985 RCRA/Superfund Hotline Status Report). I interprets Section 103(c) as imposing a "continuous" notification requirement . . . thus, the failure today to report "newly discovered" waste disposal that occurred 'prior to 1980 may present a continuing enforcement risk.

However, Section 103(c) reporting is not required for all facilities. Included in those that need not report are those (1) for which notification was previously submitted under Section 3010 of RCRA; **(2)** that qualified for interim status; (3) at which less than 55 gallons (or 7.4 cubic feet) of hazardous waste has been disposed or (4) where hazardous waste accumulated only as a result of minor leakage or spillage that occurred in the course of normal operations as long as such spiliage does not pose significant risks to human health and the environment. 46 Fed. Reg. 22,151-156 (April 15, 1981). If shipyards discover that RCRA hazardous wastes were disposed

on-site and no exemptions apply, they should submit Section 103(c) notification using the form included within Exhibit G.

Parties are not expected to sample wastes to determine if they are hazardous. Rather, parties may use any knowledge of the wastes and processes. Id. at 22,152. Notification should be submitted if a person "believes the waste may be hazardous due to barrel labels, odors, health effects, or other indicators." Id.

b. <u>Additional Reporting Requirements Under the Emergency Planning Community Right-To-Know Act</u>

Apart from the CERCLA reporting requirements set forth above, EPCRA imposes additional reporting requirements - not only for CERCLA "hazardous substances" but also for a subset of hazardous substances designated by EPA as "extremely hazardous substances." EPCRA’S reporting requirements are triggered where a release of a hazardous substance or an extremely hazardous substance exceeds the RQs. The list of hazardous substances and their respective RQs is discussed above and attached as Exhibit E (40 C.F.R. § 302.4). The list of extremely hazardous substances and their respective RQs is attached as Exhibit H (40 C.F.R. § 355, Apps. A and B).

EPCRA provides that whenever there is a release of a CERCLA hazardous substance or an extremely hazardous substance that is equal to or greater than its RQ, the owner or operator of the shipyard or facility immediately notify:

- the community emergency coordinator for the local emergency planning committee of any area likely to be affected by the release; and
- the emergency response commission of any state likely to be affected by the release.

40 C.F.R. § 355.40(b). If there is no local emergency planning committee, the owner or operator must notify the local emergency response personnel. Id. Finally, if the release occurs during transportation, or during storage incident to transportation (if the stored substance is moving under active shipping papers and has not reached the ultimate consignees), the owner or operators must call 911 or, if 911 is not available, the local emergency operator. Id. § 355.40(b)(4) (ii).

Where notice of a release is required the following information must be provided:

- the chemical name or identity of any substance involved in the release;
- whether the substance is an extremely hazardous substance;
- an estimate of the quantity released;
- the time and duration of the release;
- the media into which the release occurred
- any known or anticipated acute or chronic health risks associated with the emergency and, where appropriate, advice regarding medical attention necessary for exposed individuals
- proper precautions to take as a result of the release, including evacuation, and
- the names and telephone numbers of the person or persons to be contacted for further information.

Id. § 355.40(b)(2); see also 55 Fed. Reg. 30,632 (July 26, 1990). In addition, "as soon as practicable" after the release, the shipyard or facility must provide a written "follow-up emergency notice" that must

> reiterate and update information provided in the oral notice;
>
> describe actions taken to respond to and contain the release;

- identify any known or anticipated health risks associated with the release; and

- where appropriate, give medical advice for exposed individuals.

Id. § 355.40(b)(3).

Failure to give notice as set forth above can result in the imposition of civil penalties of up to $25,000 per violation per day — up to a daily maximum of $75,000. Id. 355.50(a). In addition, criminal sanctions may be imposed for knowing and willful violations of the requirements. Id. § 355.50(b).

2. Response Action

A major purpose of the notification requirements is to alert the appropriate government officials to releases of hazardous substances that may require rapid response to protect human health, welfare and the environment. EPA may respond whenever there is a release or a substantial threat of a release of a hazardous substance or other pollutants or contaminants into the environment that may present an imminent and substantial endangerment. Although EPA will assess each release on a case-by-case basis, in most cases, it will evaluate the reported releases but will not perform or require the facility owner to perform a cleanup.

If EPA determines that some response is required it has authority under CERCLA to:

- order the parties who are responsible for the release to clean up the contamination (CERCLA Section 106(a)); or

- clean up the contamination itself and recover its cleanup cost from the responsible parties (CERCLA Sections 104, 107).

A private party's failure to comply with a cleanup order risks civil penalties of up to $25,000 per day, in addition to a requirement that it reimburse the government for any costs that the government may incur in performing the cleanup called for in the order, plus three times the

government's costs pursuant to CERCLA's "treble damages" provision. CERCLA Sections 106(b)(l), 107(a), and 107(c)(3); 42 U.S.C. §§ 9606(b)(l), 9607(a) and (c)(3).

In light of the severe sanctions for noncompliance, shipyards generally will want to comply if they do receive an administrative order. However, a shipyard may be able to recover its compliance costs after the response action is completed, if it can establish: (a) that the response actions called for in the order were inconsistent with EPA's regulations (set forth in the National Contingency Plan ("NCP"), 40 C.F.R. Part 300), or (b) that it is not a liable party for the site. CERCLA Section 106(b)(2).

Perhaps the greatest relevance that CERCLA may have to shipyards in the context of restoration is not that the government would decide to become involved through the enforcement mechanisms outlined above, but that the shipyards may want to recover their own cleanup costs against other private parties, pursuant to CERCLA's private cost recovery provisions. To do so, however, shipyards will need to ensure that the cleanup is performed in a manner that is consistent with EPA's regulations (again set forth in the NCP, 40 C.F.R. Part 300). Similarly, shipyards may want to seek to recover their costs through actions brought under RCRA, or even state law. The requirements for recovery under these theories — particularly under CERCLA — are complex and otherwise beyond the scope of the Restoration Guide, but they are important to bear in mind whenever a cleanup is undertaken for which other parties may share responsibility. See M. Hill, "Private Party Cost Recovery Actions in the Wake of KFC Western v. Meghrig and Other Recent Developments," 30 Chemical Waste Litigation Reporter 454 (August 1995) (discussing cost recovery under CERCLA, RCRA and state law) (attached as Exhibit I).

C. THE CLEAN WATER ACT

The Clean Water Act (formally known as the "Federal Water Pollution Control Act"), is the federal law governing the discharge of pollutants to "navigable waters," which are broadly defined to include nearly all waters, even wetlands. See 33 U.S.C. §§1251-1385. The CWA also sets forth reporting and response requirements for the accidental discharge of RQs of oil and hazardous substances consistent with the requirements set forth in CERCLA, see Section II.B.1. Finally, the CWA applies to the contamination of sediments, and it governs all operations that involve "dredging" or "filling."

1. Direct Discharges of Pollutants - NPDES Permits

The primary control mechanism under the CWA is the National Pollutant Discharge Elimination System ("NPDES") permit program. EPA has delegated NPDES permitting authority to all but 10 states[3/] and the District of Columbia. State programs must meet federal standards at a minimum, and state standards are often more stringent than federal.

The NPDES permit program regulates the direct discharge of pollutants from "point sources" to waters of the United States. As their name implies, point source discharges are those that enter navigable waters through a pipe or outfall of some other kind of conveyance. Point source discharges typically include: process wastewater (including wash waters and bilge water); contact and non-contact cooling waters; and storewater discharges associated with industrial activity or construction.

3/ These include Alaska, Arizona, Florida (EPA approval for wastewater discharges pending), Idaho, Maine, Massachusetts, New Hampshire, New Mexico, Oklahoma and Texas.

Generally, NPDES permits are issued on an individual basis; however, some "general" permits may apply to allow facilities to make discharges of various kinds without the need to apply for and receive a separate, individual permit. These general permits are published by EPA in the Federal Register for the nondelegated states [14/] and by states in their state equivalent publication for the delegated states. To discharge pursuant to a general permit, facilities generally must file a "Notice of Intent" for coverage under the permit in advance of any discharge, typically 48 hours in advance.

If an operation does not qualify for a general permit discharges must be made under an individual NPDES permit. Individual permit applications are time-consuming and expensive. It can take several months or more to collect the necessary information have the application analyzed by the regulatory agency (generally EPA or its state counterpart), and have the permit issued. (NPDES permit regulations are found at 40 C.F.R. Part 122.) NPDES pern (individual or general) must be renewed every five years.

NPDES permit conditions are based upon technology and/or water quality standards. Individual NPDES permits are tailored to the circumstances of a particular shipyard and the particular point source covered by the permit. Periodically, EPA studies different industries to determine if "set" discharge limitations should be applied on an industry-wide basis. EPA studied the shipbuilding and repair industry in the 1970s, but concluded that, "[t]his industry is such that numerical effluent limitations are impractical and difficult to apply in a manner which could be monitored . . . ." EPA "Draft Development Document for Proposed Effluent Limitations

14/ An up-to-date list of general permits can be obtained from EPA's General Permits Information Exchange ("GPIX") database, at (202) 260-8858 or (202) 260-6057. One example of a general permit is discussed below, at note 16.

Guidelines and Standards for the Shipbuilding and Repair Industry (Point Source Category)," (Dec. 1979); see also "Guidelines for the Development of Best Management Practices for the Shipbuilding and Repair Industry," NSRP Dec. #0353 (July 1992). Therefore, NPDES permit writers are free to consider shipyard facilities on an individual basis and are restricted only by considerations of general technology, local water quality standards, and the facility's implementation of what are kuown as "best management practices."[15/]

Restoration projects may affect currently permitted discharges by increasing or decreasing effluent flow or pollutant concentrations (e.g., by expanding or decreasing one's production operations). Moreover, if restoration requires the pumping and treating of contaminated groundwater, any discharge of the treated groundwater must be done in accordance with an NPDES permit. Therefore, current NPDES permits should be reviewed carefully to determine if changes resulting from a restoration project will cause permit violations. Facility restoration may require the operator to obtain a new NPDES permit, if the increased discharge cannot be made within an existing permit's limitations. However, some restoration activities might be tailored so that they do not require permitting under the NPDES program. For example, construction activity that disturbs less than five acres may not require an NPDES permit for stormwater. See id. § 122.26(b)(14)(x).[16/] In addition not all "industrial" stormwater

15/ Even though EPA decided not to develop effluent limitations guidelines specifically for the shipbuilding and repair industry, the Agency has included shipyards in its planned effluent limitations guidelines for Metal Products and Machinery industries (Phase II) that may be proposed within the next three years. MP&M Phase I effluent limitations guidelines that may affect some shipyard operations were proposed on May 30, 1995 (60 Fed. Reg. 28,209).

16/ Construction activities in nondelegated states that disturb more than five acres may fall under a general permit provided that the discharger develops sediment and erosion controls,
(continued...)

discharges require permits. EPA has specifically defined "stormwater associated with industrial activity" to mean only certain primary activities, such as most manufacturing, landfilling, recycling, and transportation-related activity that includes vehicle maintenance or equipment cleaning operations (see 40 C.F.R. § 122.26(b) (14)(i-xi)). Shipyards are facilities for which stormwater discharge permits will be required.

If, during a restoration project it becomes apparent that a shipyard will need to discharge wastewater or stormwater not included within its permit or to exceed one or more of its existing discharge limits, the shipyard must notify the appropriate authority (either EPA or a delegated state agency) to negotiate a means by which the discharge can be made. The permitting authority may be able to issue the shipyard a permit modification pursuant to 40 C.F.R. §§122.62-63, 124.5. Under the NPDES program, permits may be modified based upon a written request by the permittee, if it is shown that there are material and substantial alterations or additions that occurred after permit issuance that justify the application of permit conditions that are different or absent in the existing permit.

Finally, NPDES permits that are issued by "delegated" states are enforceable by both the state and EPA. In addition concerned private citizens may, in some circumstances, initiate legal actions for continuing violations of the CWA in what are commonly referred to as "citizen suits." CWA Section 505.

16 (...continued)
implements storm water pollution prevention plans, provides flow attenuation and generally reduces pollutant loadings from construction activities. 57 Fed. Reg. 41175 (Sept. 9, 1992). Most delegated states have promulgated similar general permits.

POTW'S local pretreatment program (which, in turn is prescribed by the CWA). POTWs develop pretreatment programs or enter into contractual relationships with companies who are indirect dischargers in order to ensure that the POTW can meet its own discharge limits.

As with direct discharges, if during a restoration project it becomes apparent that a shipyard will need to initiate a discharge or exceed one or more of its POTW discharge limits, the shipyard must notify the POTW to negotiate a means by which the discharge can be made. This may require submission of a baseline sampling and analysis report (40 C.F.R. § 402.12). Modification requirements for indirect dischargers are usually contained in the POTW's pretreatment program regulations.

3. Reporting of spills

Section 311 of the CWA requires EPA to regulate the unintended discharge of oil and CWA hazardous substances (which area subset of CERCLA hazardous substances, contained in Exhibit E), and are listed in 40 C.F.I. §117.3, Exhibit J. Where discharges of oil or CWA hazardous substances in excess of their RQs are made, facilities must immediately report them to the Coast Guard's National Response Center (800-424-8802).[17/] Section 311's reporting

---

17/ The CWA requires the Coast Guard to notify the appropriate state agency. CWA Section 31l(b)(5). However, there may be state or local laws that require the shipyards to report to state or local agencies as well.

requirements apply not only to releases that may occur during a restoration project, but also to past releases that may be discovered during restoration.

The RQ for oil[18] is defined generally as an amount that would: (1) violate applicabl water quality standards, or (2) cause a film or sheen upon or discoloration of the surface of the water or adjoining shorelines or cause a sludge or emulsion to be deposited beneath the surface of the water or upon adjoining shorelines. 40 C.F.R §§5110.3-110.5.

The list of CWA hazardous substances includes hundreds of substances. These substances and their RQs range from 1 pound to 5,000 pounds, as measured over a 24-hour period and are contained in Exhibit J. 40 C.F.R § 117.3.

The federal government may elect to remove the spilled substance and assess the removal costs against the responsible person. However, if a release was caused solely by an "act of God," an "act of war," or a "third party," the owner or operator of the facility will not be held responsible for these costs. Indeed if in such circumstances, the owner or operator removes the released oil or hazardous substance, the owner or operator may be able to recover its removal costs from the federal government. CWA Section 31l(i).

Owners of facilities with oil discharge potential are required to prepare Spill Prevention Control and Countermeasure ("SPCC") Plans. See 40 C.F.R. Part 112. SPCC Plans must be reviewed and certified by a Registered Professional Engineer, must be made available to EPA for on-site inspection and may be required to be submitted to EPA for approval. Id. §§ 112.3(d), (e). In some circumstances, EPA may require amendment of the SPCC Plan. Id. §112.4.

18/ The term "oil" is broadly defined to include "oil of any kind or in any form, including, but not limited to, petroleum, fuel oil, sludge, oil refuse, and oil mixed with wastes other than dredged spoil." 40 C.F.R $110.2.

4. <u>Sediment and Water Quality</u>

The CWA is one of several federal statutes that provide authority for EPA to address the problem of contaminated sediment. This authority has, in turn, been delegated to several distinct offices within EPA and resulted in confused, often overlapping federal efforts to quantify and address ecological or human health risks posed by contamination in sediment.

To streamline its decision-making, and to promote consistent assessment of risk management of contaminated sediment EPA developed and published a "Contaminated Sediment Management Strategy." The strategy has four strategic goals: (1) prevent further sediment contamination that may cause unacceptable ecological or human health risks; (2) clean UP sediment contamination that adversely affects water bodies or their uses, or otherwise presents risks to human health or the environrnment (3) ensure that sediment dredging and dredged material disposal are managed in an environmentally sound manner; and (4) develop and consistently apply methodologies for analyzing contaminated sediment.

To achieve these goals, EPA has said that it will undertake six initiatives. First, EPA will assess whether sediment is contaminated, using standard toxicity test methods and chemical-specific sediment quality criteria. This process will lead to the development of a national inventory of sites and sources of sediment contamination (the National Sediment Inventory). This inventory will be used by EPA to target sites for contaminated sediment assessment prevention and remediation. These actions will enable EPA to focus on cleaning up the most contaminated water bodies and avoid further contamination.

Second, EPA will undertake preventative activities aimed at regulating the use of pesticides and toxic substances that accumulate in sediment. EPA proposes to use acute sediment

toxicity tests to support chemical registrations under the Federal Insecticide, Fungicide and Rodenticide Act and TSCA. EPA also will develop effluent limitations guidelines for industries that discharge sediment contaminants in significant amounts.

Third, EPA proposes using various environmental statutes - including CERCLA, RCRA, CWA, TSCA, the Rivers and Harbors Act and the Oil Pollution Act - to require parties responsible for pollution to perform remediation.

Fourth, EPA will develop technical guidance regarding dredged material testing, dredged material disposal site selection, and disposal alternatives. The Agency seeks to ensure the disposal of dredged material in an environmentally sound manner.

Fifth, EPA will undertake research to develop and validate new chemical-specific sediment criteria and other sediment assessment methods, improve understanding of the transfer of sediment contaminants through the food chain, and develop and evaluate the range of technologies for remediating contaminated sediment.

Finally, EPA will initiate public outreach programs to demonstrate the Agency's commitment to sediment management efforts and wiIl produce regular status reports on sediment management activities. EPA believes its strategy will be the "keystone" to a much broader Federal government strategy for the management of contaminated sediment.

Thus far, EPA's new contaminated sediment management strategy has not resulted in relieving or increasing current regulations directed at activities that affect sediments. However, despite the Agency's desire to streamline the decision-making process and promote consistent assessment of risk management of contaminated sediments, it is likely that EPA's strategy will lead to added expense and regulatory burden for shipyards. Therefore, shipyards should consider

how sediment at or near the shipyard may be affected during restoration. In planning restoration activities, a shipyard may decide to prioritize those activities that affect sediment under current laws and regulations.

5. Dredge Disposal

In addition to the requirement for NPDES permits for regulated discharges, the CWA demands that parties obtain separate permits whenever they want to conduct "dredge" or "fill" activities in waters (including wetlands) of the United States. These permits are issued under Section 404 of the CWA. See 33 U.S.C. §1344.

The U.S. Army Corps of Engineers bears primary responsibility for administering the Section 404 program.

Section 404 applies to essentially any form of marine construction activity, and many forms of remediation or other restoration activities. For example, dredging, placing pilings for most kinds of industrial development, and similar activities generally may require a Section 404 permit. Significantly, however, the Corps has taken the position that permits are not required for pilings used in wharves, piers, and many other structures that traditionally have not substantially harmed aquatic functions. A Regulatory Guidance Letter regarding application of Section 404 to pilings is attached as Exhibit K. 58 Fed. Reg. 17,209, 17,211 (April 1, 1993).

Obtaining a Section 404 permit is a multi-stage process. Thus, as with NPDES permits, the process should be initiated well in advance of any restoration project (typically 6 to 10 months). One stage requires the Army Corps to prepare an environmental assessment ("EA"). Where the "EA" or other information indicates that the project will have a "significant impact" on the environment the Corps must prepare a more detailed document, called an environmental

impact statement ("EIS"). 42 U.S.C. § 4332; 33 C.F.R. Part 230. Although in such circumstances preparation of the EIS is, ultimately, the Corps' responsibility, private entities are generally required to prepare the EIS under the Corps' guidance and supervision.

A permit must also be obtained from the Corps before dredged or fill material may be placed or redistributed in wetlands. 33 U.S.C. § 1344(a); 33 C.F-R. §323.3. The definition of the term "wetland" is extremely broad, and criteria related to an area's hydrology, vegetation and soils all play a part in determining whether an area is a "wetland." 40 C.F.R. § 230.3(t); see generally Corps of Engineers Wetlands Delineation Manual, and EPA's Wetland Identification and Delineation Manual.

The definitions of "dredged" and "fill" material are also broad including virtually any solid material (e.g., sand, dirt, pilings) that is placed or redistributed in a wetland. 33 C.F.R. § 323.2(c), (e). The substantive environmental criteria for determining appropriate disposal sites for "dredged" or "fill" material are detailed in the federal regulations. See 40 C.F.R. Part 230. For example, to comply with disposal site guidelines, Section 230.30 requires a shipyard to consider the potential impact of the disposal on threatened or endangered species.

The disposal of dredged sediment from a harbor or waterway to an ocean site could also be subject to the Marine Protection, Research and Sanctuaries Act ("MPRSA," also known as the "Ocean Dumping Act"). Thus, prior to disposing of dredged sediments in the ocean, shipbuilders must review MPRSA requirements. See 33 U.S.C. §§ 1401-45; 40 C.F.R. Part 227.

Finally, just as certain "general" permits apply to cover various direct discharges of pollutants (See Section II.C.1, above, Section 404 provides "nationwide permits" that allow parties to conduct certain dredge or fill activities without obtaining an individual permit. The nationwide

permits (and the special conditions that must be met for them to apply) are set forth at 33 C.F.R. Part 330 Appendix A (attached as Exhibit L), and include activities such as:

- "The repair, rehabilitation or replacement of any previously authorized, currently serviceable, structure or fill . . . .";
- "Outfall structures and associated intake structures where the effluent . . . has been permitted . . . .";
- "Discharge of material for backfill or bedding at utility lines";
- "Bank stabilization activities"; and
- "Minor works, fills, or temporary structures required for the removal of wrecked abandoned, or disabled vessels, or the removal of man-made obstructions to navigation."

D. <u>THE CLEAN AIR ACT</u>

The Clean Air Act establishes a national framework for the attainment and maintenance of air quality standards. The national ambient air quality standards ("NAAQS") establishes national standards for six "criteria" pollutants: carbon monoxide nitrogen oxides ("NOx"); sulfur dioxide; particulate matter ("PM-1O"); lead and ozone (precursors of which are volatile organic compounds ("VOCs") and NOx). The CAA also regulates, among other things, the emissions of 189 hazardous air pollutants ("HAPs") that are specifically listed under CAA Section 112(b) (Exhibit M).

The CAA provides EPA with authority to set standards and to delegate implementation of its programs to the states. However, EPA retains oversight authority over the states to ensure that CAA programs are implemented properly and that NAAQS are achieved within established time frames.

With respect to shipyard restoration activities, most CAA requirements will not be triggered. However, a restoration project may subject a shipyard to the CAA's requirements pertaining to (1) asbestos; (2) permitting; and (3) EPA's proposed National Emission Standards for Hazardous Air Pollutants ("NESHAP") for shipbuilding and ship repair. These areas are discussed below.

1. Asbestos and Related Notification, Demolition Construction. and Disposal Requirements

One of the first NESHAPs promulgated by EPA was for asbestos. See 40 C.F.R. § 61, Subpart M. The asbestos NESHAP establishes mandatory notification requirements as well as standards for building demolition and asbestos disposal (including "galbestos," a common form of asbestos-containing material).

The asbestos NESHAP is applicable to demolition activities in varying degrees, depending upon the existence and condition of the asbestos material. "Friable" asbestos is the most heavily regulated asbestos-containing material ("RACM"), and is subject to the full panoply of the NESHAP requirements. Friable asbestos material is defined as any "material containing more than 1 percent asbestos . . . that when dry, can be crumbled, pulverized, or reduced to powder by hand pressure." Id. Non-friable asbestos is subject only to the rule's notification requirements.

Before a shipyard may commence demolition or any other activity that may disturb asbestos material, it must provide EPA and the appropriate state agency with at least 10 days notice. Id. § 61.145(b). Notification is required whenever a facility is to be demolished, regardless of whether asbestos is actually present. Id. § 61.145(a)(l), (2). The notice must include such things as the location of the demolition activity; a description of the facility and

types of asbestos; the methods used to identify the presence of asbestos; an estimate of the amount of asbestos, if any, to be removed, the amount of nonfriable asbestos that will remain in place during demolition; and the scheduled dates of the demolition activity. Id. 61.145(b).

In addition to the notice requirements, the NESHAP establishes specific standards for the demolition or renovation of structures that contain asbestos. For example, the NESHAP requires that all friable asbestos be removed from the facility prior to demolition in accordance with wetting, packaging, labeling, and other removal standards set forth in the rule. Id. § 61.145(c)(1). Demolition activities must also be supervised by "at least one on-site representative, such as a foreman or management level person or other authorized representative" who is trained in the applicable NESHAP requirements. Id. § 61.145(c)(8). Once removed, the RACM must be contained and disposed of at an EPA-certified asbestos disposal facility. Id. §61.150.

Non-friable asbestos that is in good condition and would not become friable during demolition or disposal activities does not have to be removed prior to demolition except where demolition will be by intentional burning. Id. §§ 61.145(a)(2) and (c). In addition, nonfriable asbestos may be disposed of at any landfill that is permitted to accept demolition debris. Significantly, both friable and nonfriable asbestos must be shipped in marked vehicles pursuant to EPA's asbestos shipping requirements. Id. § 61.150(c),(d).

Shipyards that transport asbestos-containing material offsite must maintain shipment records that contain the following information: name and address of the local, state, or EPA Regional office responsible for administering the NESHAP program the approximate quantity shipped; the name, location and telephone number of the disposal site; the date transported; the name of the transporter; and a certification that the asbestos material is being shipped in

accordance with the NESHAP standards. Asbestos shipping records must be kept on-site for two years, and a copy must be provided to the disposal facility. Id.

2. Air Emission Limits and Permitting

Under the CAA stationary sources (such as shipyards) must obtain federal and/or state air permits that establish source-specific emission standards before they may construct a new source or modify an existing source. Depending upon their scope, shipyard restoration activities could trigger air emissions permitting requirements. If a facility installs a new or modifies an existing emission unit (e.g., a new painting or coating process unit), the facility could become subject to federal and state Prevention of Significant Determination ("PSD") and/or New Source Review ("NS") permitting programs, depending upon the amount of emissions generated from the source and the attainment status of the region where the shipyard is located. PSD applies to areas that have attained NAAQS (attainment areas); NSR applies to areas that have not (nonattainment areas).

Under the PSD program, sources must demonstrate that the new or modified emission unit will not contribute to a violation of the NAAQS, and must install "best available control technology" on the new or modified emission unit.

Under the NSR program, before a source can construct or modify an emission unit, it must: (1) offset projected emission increases of nonattainment pollutants with emission reductions of those pollutants at existing facilities and (2) install control technology that achieves the "lowest achievable emission rate" ("LAER").

A shipyard restoration that includes the construction or modification of an emissions unit could also have ramifications under CAA Title V. Title V establishes a federal air permitting

program designed to codify the emissions standards applicable to a source into one document the Title V permit. Title V is applicable to "major" stationary sources. A major source is any facility that emits criteria pollutants above the applicable major source threshold (which varies depending upon the severity of air pollution in a particular region), or that emits 10 tons per year of any one HAP or 25 tons of any combination of HAPs.

Emissions from a new process, or modification of an existing one, could cause a "non-major" source to become major, thereby subjecting the shipyard to the Title V program. In addition, a Title V source that already has a Title V permit may have to modify its permit to accommodate the source modification. Title V permit modifications may involve prior public notice and comment and a lengthy EPA review process, the results of which could delay implementation of a restoration project for months or years. See 60 Fed. Reg. 45,530 (August 31, 1995).

In addition to federal permitting programs, states have their own permitting requirements (e.g., construction permits) that could be triggered as a result of restoration activities. State permitting programs could be applicable even if the restoration is relatively "minor," and therefore must be reviewed in the context of virtually any restoration projects.

3. <u>NESHAPs for Shipbuilding and Ship Repair</u>

Although specific federal emission standards have not yet been established for shipyards, EPA has recently proposed NESHAPs for shipbuilding and ship repair that would establish HAP emissions at a level attainable by maximum achievable control technology ("MACT"). 59 Fed. Reg. 62,681 (Dec. 6, 1994). EPA has also proposed that the MACT standard operate as the Control Techniques Guidelines ("CTGS") for controlling emissions of VOCs and particulate

matter ("PM- 10") to levels that may be achieved through adoption of best available control measures ("BACM"). Id. at 62,682; see CAA Section 183(b)(4), 42 U.S.C. § 751l(b)(4). CAA Section 183(b)(4) requires EPA to issue CTGs to reduce aggregate emissions of VOCs and PM-10 into the ambient air from paints, coatings, and solvents used in shipbuilding and ship repair.

EPA's proposed MACT standard would apply to any facility that has the potential to emit 10 tons per year of any single HAP, or 25 tons per year of any combination of HAPs. 59 Fed. Reg. at 62,683. EPA expects that at least 25 shipyards will exceed this threshold. Id. The proposed MACT standard would impose emission limits on the HAP content of 23 categories of coatings used at shipbuilding facilities (e.g., general-use coatings, high gloss coatings, and antifoulants). Id. Alternative means of compliance, other than using compliant coatings, may be used if they are approved in advance by EPA. Compliance with the VOC limits would have to be demonstrated monthly. Id.

E. TOXIC SUBSTANCES CONTROL ACT

The Toxic Substances Control Act is the principal statute governing the manufacture and disposal of polychlorinated biphenyls. Shipyards undergoing restoration are likely to be subject to TSCA requirements in two instances: First TSCA's requirements will apply to the remediation and disposal of PCB-contaminated soil, sediments, or other environmental media. Second, facilities that have used PCBs in electrical components (such as transformers and capacitors) may need to dispose of the PCBs, and must do so in accordance with TSCA's requirements.

1. **PCB Remediation**

While constructing, modifying, or expanding a facility (or simply while auditing a facility), shipyard managers may discover PCBs in soil or sediments that will require remediation.

To help facilities plan remediation, EPA promulgated its PCB Spill Cleanup Policy ("Spill Policy") in 1987. The Spill Policy is attached as Exhibit N (40 C.F.R. § 761.120).

EPA's Spill Policy applies to spills resulting from the release of materials containing PCBs at concentrations of 50 parts per million ("ppm") or greater. 40 C.F.R. § 761.l(b); 59 Fed. Reg. 62,788,62,792-793 (Dec. 6, 1994). As a simple example, any dredged sediments containing PCB concentrations of 50 ppm or greater would be regulated. However, PCBs are also subject to an "anti-dilution" rule, which means that PCB concentrations are determined by the concentration of the original PCB source. Therefore, if the original PCB source (such as a transformer) had a PCB concentration equal to or greater than 50 ppm, then the PCB-contaminated media would also be regulated, even if the PCB concentration in the media has been "diluted" to below the 50 ppm threshold.

The Spill Policy requires different cleanup standards, depending on the location of the PCB spills and the exposure potential. For "restricted areas" (which include most industrial areas, such as shipyards), the contaminated media must be cleaned to a PCB concentration of 25 ppm by weight, but EPA can vary from the Spill Policy standards depending on certain site-specific factors.

The Spill Policy itself applies only to spills that occurred after May 4, 1987. 40 C.F.R. § 761.120(a)(l). For prior spills, EPA's Regional Offices determine the cleanup standards.

However, the Regional Offices are likely to require cleanup standards that are the same as, or similar to, the Spill Policy standards.

2. <u>PCB Disposal</u>

The disposal of PCBs is governed under Section 6(e) of TSCA and its implementing regulations. See 40 C.F.R. Part 761. Under these regulations, both accidental and intentional releases of PCBs qualify as PCB "disposal." The regulations apply not only to PCBs, but also to (1) PCB articles; (2) contaminated media with PCB concentrations equal to or greater than 50 ppm; and (3) media contaminated by PCBs from a source containing PCBs at concentrations equal to or greater than 50 ppm. These materials must be disposed of in a licensed PCB incinerator, or a chemical waste landfill licensed to accept PCBs. 40 C.F.R. $$761.60, 761. 125(a)(2). However, the EPA Regional Administrator has the authority to grant variances on a case-by-case basis. Because EPA has not delegated its TSCA authority to the states, decisions concerning PCB disposal and cleanup remain with EPA's Regional Administrators.

In a recently proposed rulemaking, EPA proposes alternative disposal methods for certain categories of "large volume" wastes that would not pose an unreasonable risk of injury to health or the environment. 59 Fed. Reg. at 62,790. The term "large volume" wastes includes such things as dredged materials, contaminated environmental media and demolition waste, any of which might have to be disposed of during a shipyard's restoration. A brief summary of these disposal methods and the proposed changes to the PCB rules is attached as Exhibit O (Sept. 11, 1995 Collier, Shannon Memorandum On EPA's Proposed PCB Disposal Rule). The final changes to the PCB rules are not expected to be promulgated until at least April 30, 1996.

CHAPTER III

ENFORCEMENT CONCERNS

This Restoration Guide provides advice on how to conduct various restoration activities in accordance with applicable environmental regulations and requirements. It would not be complete, however, without identifying environmental enforcement concerns that might arise in the context of restoration.

A shipyard company found to be in non-compliance with any one of a host of environmental requirements may be exposed to civil fines of up to $25,000 per violation per day under the Clean Air Act, the Clean Water Act, CERCLA, RCRA, and several other environmental statutes. Additionally, all the major environmental statutes include criminal liabllity provisions that could expose not only a corporation, but also corporate officers, directors, and managers to criminal liability. Recent case law demonstrates an increasing trend toward broad interpretation of these criminal provisions, resulting in steep criminal fines and/or prison sentences even for technical violations.[19/] Finally, a conviction of even a misdemeanor can, in some circumstances,

19/ Moreover, many environmental statutes contain "citizen suit" provisions, under which private citizens can, under some circumstances, sue to require compliance and, in some cases, payment of penalties.

Furthermore, very recently private parties have taken advantage of the False Claims Act 31 U.S.C. § 3729 et seq. (originally enacted in 1863), to sue companies that contract with the federal government for non-compliance with environmental or other laws. In a recent case, Accudyne Corp. agreed to pay a fine of $12 million ($2.5 million of which went to the private citizens who brought the suit) because, in the course of supplying electronic equipment to the Defense Department, Accudyne had allegedly violated RCRA, CERCLA, and the Clean Water Act but not disclosed those violations to the Defense Department. To date, most of the recent False Claims Act claims have been filed in Ohio, but it may not be long before plaintiffs' counsel in other jurisdictions bring them as well.

bar companies from qualifying for any contract with the federal government thus threatening the lifeblood of most shipyards.

A. ENFORCEMENT TRENDS

The Clinton Administration reorganized EPA's enforcement program in 1994 by merging each program's enforcement office into one office called the Office of Enforcement and Compliance Assurance. EPA Administrator Carol Browner announced late last year that the reorganization is intended to: (1) place an emphasis on targeting serious violators; (2) promote pollution prevention strategies; and (3) encourage development of innovative approaches to long-term compliance.

Notwithstanding the Clinton Administration's recently stated focus on compliance assurance, EPA maintained record levels of enforcement actions in fiscal year 1994, including:

- 525 new criminal investigations;
- 220 criminal cases referred to the Department of Justice for prosecution;
- 1,597 administrative penalty actions; and
- **430 civil cases referred to the Department of Justice for judicial enforcement.**[20/]

20/ Additionally, each state has its own environmental statutes which may be more stringent than federal laws. Last year alone, over state-law 11,000 enforcement actions were brought in state and local courts against facilities and individual for violation of environmental laws. In planning a compliance program, therefore, shipyards must be aware of state and local environmental requirements as well as federal.

The majority of the criminal investigations and prosecutions were brought under the Clean Water Act and RCRA. The chart below demonstrates the breakdown of criminal enforcement activity by statute: 21/

Statute/Program Area	New Investigations Opened	Referrals to DOJ
Clean Air Act	89	39
Clean Water Act	174	66
Wetlands	14	3
Safe Drinking Water Act	7	2
RCRA	173	74
CERCLA	21	12
TSCA	11	6
FIFRA	22	14
other	14	3
Total	525	220

The amount and size of penalties and fines collected by EPA also demonstrate the Agency's recently stepped up enforcement efforts. Penalty estimates for 1994 indicate a record $128.4 million in civil fines and $36.8 million in criminal fines. Private party Superfund cleanup commitments exceeded $1.4 billion, and $206 million was returned to the U.S. Treasury through government **cost** recovery actions. Additionally, private parties spent over $747.5 million in

21/ Information in this chart is from EPA's Enforcement and Compliance Assurance Report for Fiscal Year 1994.

injunctive relief and supplemental environmental projects ("SEP 's")[22/] in non-Superfund cases in 1994.

B. CORPORATE LIABILITY

As set forth above, a corporation's non-compliance can lead to civil or administrative liability, criminal sanctions, or suspension of contracting privileges.

1. Corporate Civil or Administrative Liability

A company can be held civilly liable under any of several environmental statutes where the company is considered to be a responsible party. The civil liability provisions of the major environmental statutes are as follows:

> a. CERCLA. Section 107(a) makes a company strictly, jointly, and severally liable for the cost of cleaning up the release of any hazardous substances at a site if the company is a potentially responsible party ("PRP") as defined by the statute. Generally, a PRP is defined as (1) a current owner or operator of a facility where hazardous substances were released; (2) a former owner or operator of such a facility, if hazardous substances were disposed there during the person's period of ownership or operation; (3) a person that arranged for the

---

22/ Historically, EPA has sought monetary penalties exclusively in civil administrative actions. However, in 1991, EPA established a policy to be used in administrative enforcement cases which allows a party found in violation of an environmental statute to perform a SEP in exchange for mitigation of an administrative penalty. In early May of this year, EPA's Office of Enforcement and Compliance Assurance issued a revised SEP policy entitled "EPA Interim Policy on Supplemental Environmental Projects." The revised policy defines more precisely what kinds of projects would be considered SEPs by the Agency, and it specifically identified seven categories of projects that may qualify as SEPs. It also provides step-by-step procedures for calculating the cost of a SEP and the percentage of that cost that may be applied as a mitigating factor in establishing an administrative policy. Shipyards facing enforcement actions should consult with counsel to determine whether and how to propose SEP actions in lieu of civil or administrative penalties.

treatment or disposal of hazardous substances that were sent to such a facility or **(4)** a person that transported hazardous substance to such a facility. PRPs may also be ordered to perform the cleanup. Section 106(a).

b. RCRA. Section 3008(g) creates liability for any person who violates any requirement of the statute, and establishes a civil penalty of up to $25,000 per day for each violation.

Sections 7002 and 7003 of RCRA also provide that any person who has contributed or is contributing to the handling, storage, treatment or disposal of any solid or hazardous waste that may present an imminent and substantial endangerment to health or the environment may be required to clean up the problem.

c. Clean Water Act. Section 309(d) and (g) authorizes the government to bring a civil action or assess a civil penalty whenever any person is in violation of any condition or limitation of the CWA. Civil penalties may be up to $25,000 per day per violation. Administrative penalties may be up to $10,000 or $25,000 (depending on the type of violation) but may not total more than $125,000.

d. Clean Air Act. Section 113(b) authorizes EPA to bring a civil action for penalties of up to $25,000 per violation per day for violation of the Act or a SIP or permit issued thereunder. EPA may also assess and collect administrative noncompliance penalties against persons in violation of applicable implementation plans or other provisions of the Act. Section 113(d). These penalties may also run up to $25,000 per day up to $200,000. Stationary sources may also be required to pay a "noncompliance" penalty equal to the amount of economic benefit for any noncompliance. Section 120(a), (d); see Section 113(b).

e. SARA Title III. Section 325(a)(b) of EPCRA authorizes civil penalties of up to $25,000 per day

and administrative penalties of up to $25,000 per violation for failure to comply with notification and reporting requirements.

Where a corporation is found civilly liable under the environmental statutes, penalties will be calculated based on EPA's Civil Penalty Policy. EPA, Policy on Civil Penalties (Feb. 16, 1984). Under the policy, in establishing a penalty, EPA will consider: (1) the seriousness of the violation; (2) the economic benefit to the company resulting from the violation; (3) the company's history of violations; (4) the company's good faith efforts to comply with applicable requirements; and (5) the economic impact of the penalty on the company. Counsel should be consulted when negotiating the applicability and size of any civil penalty.

2. Corporate Criminal Liability

Virtually all environmental statutes contain criminal as well as civil sanctions for noncompliance. However, the standard of conduct that will give rise to criminal liability varies among the statutes. Most statutes require a "knowing or willful" violation of the statutory provisions before imposing criminal penalties.[23/] This includes most of the major environmental statutes (e.g., CERCLA, RCRA, TSCA), but the Clean Water Act and the Clean Air Act provide, in some instances, for criminal penalties for negligent violations as well as knowing violations. State laws may also impose criminal sanctions under a negligence standard. In California for example, a shipyard undergoing restoration was convicted for various hazardous waste violations under a standard of constructive knowledge only (i.e., that the shipyard knew or should have known that it was violating the statute). This is the same standard as that of ordinary civil

23/ The "knowing or willful" standard requires proof that the defendant acted deliberately with an awareness of the probable consequences of his actions. But some courts have held that the defendant need not know that his actions were illegal. See Section III.C.2. below.

negligence. People v. Triple A Machine Shop Inc., No. A059887, 1995 Haz. Waste Lit. Rptr. 28975, slip op. at 3, 6-7 (Cal. App. June 30, 1995).

Some statutes impose greater sanctions where a violation endangers the health or lives of individuals. Under the Clean Water Act, a corporation that knowingly violates specific sections of the Act and also knows that the violation places another person in imminent danger of death or serious bodily injury, may face criminal penalties of up to $1,000,000. CWA Section 309(c)(3). Similarly, under the Clean Air Act, any person who knowingly releases a hazardous air pollutant and knows that he thereby places another person in imminent danger of death or serious bodily injury faces up to 15 years and $1,000,000 in frees. CAA Section 113(c)(5)(A). And under RCRA, any corporation that knowingly transports, treats, stores, or disposes of hazardous waste in such a way that it knows will place an individual in imminent danger of death or serious bodily injury is subject to a fine of up to $1,000,000. RCRA Section 3008(e); see United States v. Protex Industries, Inc., 874 F.2d 740 (lOth Cir. 1989) (upholding a criminal fine of $7.6 million for placing employees in imminent danger by violating RCRA's safety provisions).

Corporations are presumed to have knowledge of the statutory requirements of the environmental laws. Thus, the fact that a corporate officer may not have known whether a company had a permit for a particular discharge will not be a defense to liability. See e.g., United States v. Hoflim 880 F.2d 1033 (9th Cir. 1989).

As noted, some statutes do not require a knowing or willful violation to convict a corporation of criminal activity. Under the Clean Water Act, a defendant may be criminally liable for negligently violating the terms of the Act. United States v. Dee, 912 F.2d 741 (4th Cir.

1990), cert. denied, 499 U.S. 919 (1991). This negligence standard is established by showing that the defendant corporation either acted or failed to act in a reasonably prudent manner, and because of this action or inaction, a violation of the Clean Water Act occurred. While the deftition of "reasonably prudent conduct" will vary depending on the circumstance, under this standard at least some degree of inappropriate conduct on the part of the corporation must be established by the government.

In addition to criminal prosecution under specific environmental statutes, corporations have also been prosecuted under both the Racketeer Influence and Corrupt Organizations Act ("RICO"), 18 U.S.C. §1961 et seq., and the criminal conspiracy statute, 18 U.S.C. § 371, which have their own standards of liability. See e.g., United States v. MacDonald & Watson Waste Oil Co., 933 F.2d 35 (lst. Cir. 1991) (company indicted under RICO for violating waste disposal laws and mail fraud).

3. Enforcement Through Prohibition on Government Contracts

Perhaps of greatest concern to shipyard facilities could be EPA's authority to enforce compliance with environmental statutes by suspending federal contracting opportunities. The Clean Water Act and the Clean Air Act explicitly prohibit federal agencies from entering into a contract for the procurement of goods, materials, or services with companies or other "persons" who have been convicted of a criminal offense under these statutes, where the contract would be performed at a facility at which the violation arose. See Clean Air Act § 306(a); Clean Water Act $508. Moreover, although other environmental statutes do not include explicit mandatory prohibitions on government contracting where criminal sanctions are imposed EPA may in its discretion "debar" a company from receiving a government contract pursuant to either the federal

acquisition regulations or general agency discretionary debarment regulations. See 48 C.F.R. pt. 9.4 (Debarment Suspension and Ineligibility), and 40 C.F.R. Part 32 (Government Wide Debarment and Suspension (Nonprocurement), and Government Wide Requirements for a Drug Free Workplace).

EPA is in the process of rescinding the implementing regulations promulgated pursuant to the Clean Air Act and Clean Water Act debarment provisions, so that all EPA debarment proceedings are done pursuant to the 40 C.F.R. Part 32 discretionary debarment procedure regulations and the federal acquisition regulations. These regulations establish ten mitigating factors that EPA will consider in determining whether to initiate debarment proceedings against an individual or company:

1. Whether the contractor had effective standards of conduct and internal control systems in place at the time of the activity which constitutes cause for debarment or had adopted such procedures prior to any Government investigation of the activity cited as a cause for debarment.

2. Whether the contractor brought the activity cited as a cause for debarment to the attention of the appropriate Government agency in a timely manner.

3. Whether the contractor has fully investigated the circumstances surrounding the cause for debarment and, if so, made the result of the investigation available to the debarring official.

4. Whether the contractor cooperated fully with the Government agencies during the investigation and any court or administrative action.

5. Whether the contractor has paid or has agreed to pay all criminal, civil and administrative liability for the improper activity, including any investigative or administrative costs incurred by the Government, and has made or agreed to make full restitution.

6. Whether the contractor has taken appropriate disciplinary action against the individuals responsible for the activity which constitutes cause for debarment.

7. Whether the contractor has implemented or agreed to implement remedial measures, including any identified by the Government.

8. Whether the contractor has instituted or agreed to institute new or revised review and control procedures and ethics training programs.

9. Whether the contractor has had adequate time to eliminate the circumstances within the contractor's organization that led to the cause for debarment.

10. Whether the contractor's management recognizes and understands the seriousness of the misconduct giving rise to the cause for debarment and has implemented programs to prevent recurrence.

C. INDIVIDUAL LIABILITY

Over the last five to ten years, EPA and the Department of Justice have begun to focus on individual as well as corporate liability under environmental statutes. The following sections describe the standards used to impose civil and criminal liability on individuals.

1. Personal Civil Liabilitv

Individual liability under environmental statutes generally requires a finding that a party falls within the definition of a "responsible person" under the statute in question. That determination depends on the degree of control exercised by the individual over the corporation. Courts have held individual officers personally liable for acts in which they participated, or for which they were directly responsible. See Robertshaw Controls Co. v. Watts Regulator Co., 807 F. Supp. 144, 150-53 (D. Me. 1992) (corporate officers may be held liable under CERCLA where they could have prevented the release at issue); United States v. Conservation Chemical Co., 619

F. Supp. 162, 187-90 (W.D. Mo. 1985) (corporate officer who actively participated in the management of a waste disposal facility can be held personally liable under CERCLA).

Although active participation in the day-to-day management of a company establishes individual liability under most environmental statues, courts have also held liable those individuals who have the capacity to control activities that are regulated by environmental laws. For instance, in United States v. Northeastern Pharmaceutical& Chemical Co., 810 F.2d 726,744 (8th Cir. 1986), cert. denied, 48 U.S. 848 (1987), an officer was found liable under RCRA because he was the corporate president and as such was "in charge of and directly responsible for all of NEPACCO's operations . . . and he had the ultimate authority to control the disposal . . . ." That the president did not even work at the facility where the disposal occurred was not a valid defense to liability. See also Kelley v. Thomas Solvent Co. 727 F. Supp. 1554, 1562 (W.D. Mich. 1989) (officer who had authority to prevent or significantly abate a release may be held personally liable).

In light of judicial interpretations of the term "responsible person" and the extension of liability to those corporate officials who exercise, or have authority to exercise, some control over a company's operations, it is clear that traditional notions of limiting corporate liability to the corporate assets do not automatically apply in situations where the environmental statutes have been violated. Accordingly, individuals who participate in waste management or disposal decisions, and individuals who have the authority to exercise control over such practices, should protect against personal liability by assuring themselves that the corporation is complying with all applicable environmental statutes. Similarly, under the Clean Air Act, any person who

knowingly releases a hazardous air pollutant and knows that he thereby places another person in imminent danger of death or serious bodily injury faces up to 15 years and $1,000,000 in fines.

2. Personal Criminal Liability

Corporate officers and managers of shipyard facilities should also be aware of the potential for criminl liability to be imposed against an individual corporate official or manager under environmental statutes. Most of the major environmental statutes contain a criminal liability provision, generally imposing criminal liability where an individual "knowingly or willfully" violates the statute, or a regulation or permit issued thereunder.[24/]

However, recent court decisions have minimized the importance of the "knowing or willfull" requirement by upholding criminal convictions in cases even where the individual was not proven to have been aware of the statutory, regulatory, or permit provision prohibiting the activity at issue. See United States v. Weitzenhoff, 35 F.3d 1275 (9th Cir. 1994) (upholding convictions and 2-3 year prison sentences under the Clean Water Act where the defendant/plant manager knew the facility was discharging pollutants, but did not know that the discharge violated the facility's NPDES permit), cert. denied. Mariani v. United States, 115 S. Ct. (1995); United States v. Laughlin, 10 F.3d 961 (2d Cir. 1993) (upholding a sentence of over 3 years and $600,000 in fines, holding that the defendant need not be aware of the RCRA regulations or the act proscribed thereunder in order to be found to have "knowingly" violated the law), cert. denied, 114 S. Ct. 1649 (1994). Both of these courts reasoned that in the area of environmental

24/ EPA's Office of Criminal Enforcement has said that it plans to issue new guidance in the Fall of 1995 that will urge EPA investigators to focus their efforts on individuals who are individually culpable, instead of simply targeting officials who could have or should have known about the violations. Inside EPA, Vol. 16, No. 3, at 1 (Sept. 8, 1995).

law, where the laws are aimed at protecting against dangerous substances, knowledge of a statutory or regulatory restriction is unnecessary to find criminal liability.

The implications of these cases for the shipyard industry are far-reaching. Under these precedents, corporate officers and managers found to have committed even technical violations of environmental laws, including permit violations, may be criminally sanctioned without any finding of intent to violate an environmental regulation or even knowledge that an action is in violation of an environmental restriction.

CHAPTER IV

ENVIRONMENTAL AUDITING

In the face of increasingly complex environmental requirements, many companies have conducted environmental audits as a tool to improve overall compliance management. Environmental audits (sometimes called "environmental assessments") can identify, and allow companies to manage, potential problems concerning regulatory compliance or liability. Companies also use environmental audits to assess property, such as when they are either buying or selling. In the context of restoration activity, an audit may be used to gather baseline data on shipyard conditions as a critical first step in the restoration planning process.

However, an environmental audit can be a two-edged sword. Particularly where appropriate steps are not taken to shield audit reports from discovery by third parties (both public and private), and where problems that are encountered are not corrected or otherwise addressed, an audit might serve to increase a company's exposure to-liability by serving as a "road map" to the identification of problems, and as a dangerous tool that may be used by one's opponents in court or other contexts. Moreover, in some circumstances companies may be obligated to disclose problems encountered in an environmental audit to the Securities Exchange Commission, at least where the audit reveals releases or other problems that may impact the company's capital expenditures, earnings, or competitive position. See 17 C.F.R. §§ 229.10 l(c)(xii), 229.303(a).

This chapter describes environmental audits, the procedures to be followed in performing an audit and various practical and legal issues surrounding the performance of an audit and the protection of audit information.

A. THE ENVIRONMENTAL AUDIT

The environmental audit is one component among many in environmental management programs that companies generally should employ to ensure timely identification of environmental problems. Among other components of a solid environmental management program are:[25/]

- the existence of a clear environmental policy, defined by top management
- clear paths of responsibility and accountability;
- adequate procedures to identify legal requirements;
- knowledge of the potential environmental impact of the company's products and services;
- established plans to address environmental emergencies or other issues that may arise;
- a well-organized document management system,
- adequate employee training; and
- adequate resources for appropriate corrective action.

In a nutshell, the environmental audit is the component of an environmental management program that evaluates the effectiveness of the program as a whole, and it generally consists of two portions, or "Phases."

Phase I. In most cases, Phase I of an environmental audit will often be conducted by the company and include the collection and review of various existing internal records, the gathering of environmental baseline information, and the conducting of interviews. The requirements of a Phase I property audit have been standardized by the ASTM.

25/ This list is taken from the International Standards Organization, Draft Environmental Management Standards (revised 1995).

Records collected should include those related to:

- air emissions;
- hazardous waste storage, handling, and transportation
- water discharges;
- reporting requirements; and
- workplace safety conditions.

In addition, the company will likely want to collect (or create):

- a physical description of the facility (topography, geology, and hydrology);
- a description of the historic use of the property (determined through a title search and aerial photographs); and
- a listing of regulating agencies (federal, state and local).

Finally, the company may want to interview employees, operations managers, and other individuals with information relevant to the subjects outlined above.

Phase II. A Phase 11 assessment involves more detailed research and/or sampling and testing of air, water, and soil on-site to further determine whether any contamination exists, and to focus on "problem" areas identified through the Phase I assessment. A Phase II assessment requires a consultant with expertise in environmental data collection to obtain and analyze the results.

B. DOCUMENT MANAGEMENT

To facilitate the initial audit (and future audits), environmental record files should be maintained, containing all documents essential to managing the facility’s environmental program.

These include:

copies of laws, regulations, permits, corporate policy statements, and other requirements or guidelines applicable to the business;

- records of monitoring and inspection activities;
- permits in effect and permit applications pending;
- regulatory agency contacts;
- facility layout and description
- air emission records, effliuent/outfall data, water monitoring data, description of solid and hazardous waste and disposal methods, and waste monitoring data (including manifests);
- description of past practices;
- description of water supply;
- SPCC plans, emergency response plans, and disaster plans;
- pertinent correspondence;
- routine and non-routine reports to government agencies; and
- relevant OSHA documents.

With the exception of privileged and other sensitive documents (which should be kept separately, to avoid inadvertent disclosure), environmental records should be centrally filed and kept at least as long as required by law. However, reports of audits should generally be retained only until the next audit and any corrective action is completed.

The above documents, coupled with a detailed checklist,[26/] will provide the basis to

26/ Companies performing an audit will want to follow a checklist to ensure that the audit covers all relevant aspects of a facility's operations. Although somewhat outdated, one example of such a checklist is contained in "Environmental Compliance Inspection Checklist For (continued...)

initiate an environmental assessment. However, the decision to initiate an assessment should not be made until after evaluating the liability issues that the audit report or other documents might present, as discussed next.

C. DISCLOSURE OF AN ENVIRONMENTAL AUDIT

As noted, an environmental audit may generate evidence of violations or contamination, which could lead to liabllity and cleanup obligations. Attempts to force disclosure of an environmental audit will generally arise either in au agency investigation or in litigation brought by a regulatory agency or even by private individuals (e.g., residents surrounding the facility). Legislation to protect environmental audits from disclosure is now pending (HR. 1047, the "Voluntary Environmental Self-Evaluation Act"). Passage of the legislation in a form that would provide substantial protection is far from certain.

In its 1995 Interim Enforcement Policy on Voluntary Audits ("Policy"), EPA has said that it will not routinely request audit reports; however, EPA offers no guarantees of confidentiality of audits. 60 Red. Reg. 16,875 (April 3, 1995) (Exhibit P). EPA's Policy is intended to provide incentives for companies to self-audit, disclose any discovered violations to EPA, and correct the violation. One incentive is that EPA will not request an audit to trigger an enforcement investigation. EPA has also said that it will not seek what is known as the "gravity" or "punitive" component of a penalty for violations that it discovers because of information disclosed through a voluntary audit. However, EPA has made clear that it may seek "economic benefit" penalties, such that companies are required to pay for whatever economic benefit they may have gained

26.continued)
Shipbuilding Facilities, NSRP Dec. #0345 (April 1992). This document was prepared under contract to NSRP by NASSCO and Collier, Shannon, Rill & Scott.

from their noncompliance. Moreover, the Policy allows EPA to retain some discretion over whether to apply the Policy to a particular case, and thus, provides little guarantee against disclosure or misuse. In addition and significantly, it is the Department of Justice (and not EPA) who determines whether criminal enforcement actions will be brought because of disclosures made in an audit, and DOJ is not bound by EPA's Policy (although DOJ would likely consider it).

Significantly, EPA's Policy does not address whether audits are or should be protected from disclosure to third parties. Parties who are involved in litigation generally may obtain discovery of materials that are "relevant" to the subject matter of the pending action. Therefore, where environmental audits or underlying data are relevant to an ongoing action, they may be discoverable.

To prevent the involuntary disclosure of a relevant audit, a party would have to establish that the audit is "privileged" or otherwise protected from disclosure. The most common protection is that which applies to "attorney-client communications." A second applies to "work product," which is defined in the federal rules as work that is conducted "in anticipation of litigation." Fed. R. Civ. P. 26(b)(3). A third and increasingly emerging source of protection is the creation of various state statutes barring the discovery of audits that companies have voluntarily conducted of their facilities. Finally, some courts have recognized a "self-evaluation" privilege in some circumstances, even in the absence of a protective statute.

Various requirements of these protections are set forth below. With each of the protections, however, it is important to bear in mind that the company that is asserting the privilege has the burden of proving that each of these requirements is met.

1. Attorney-Client Privilege

The attorney-client privilege protects communications made in confidence to an attorney by a client (or potential client) for the purposes of obtaining legal advice. Several cases have applied the attorney-client privilege to environmental audits. See, e.g., Olen Properties v. Sheldahl. Inc., No. CV 91-6446-WDK 1994 U.S. Dist LEXIS 7125 (C.D. Cal. Apr. 12, 1994).

Generally speaking, the elements of the attorney-client privilege are

- That the communication must have occurred between a client (or prospective client) and the client's attorney (or prospective attorney);

- That the communication was made to obtain or provide legal advice; and

- That the communication has not been disclosed to any third parties, other than persons who are agents of the client or attorney.

See United States v. United Shoe Machinery Corp., 89 F. Supp. 357,358-59 (D. Mass. 1950).

The "client" can include a company and its employees, particularly those who are in a decisionmaking position. Although less certain, the privilege might also apply where the communication was made (or forwarded) to a consultant, particularly if the consultant was retained by an attorney to act as the attorney's agent. The application of these rules varies somewhat among jurisdictions, however, and even among judges within a particular jurisdiction. It is important to bear in mind, therefore, that there is no guarantee that an environmental audit will not be discovered.

2. Work Product Doctrine

Although rare, in some circumstances an environmental audit may be protected from discovery under what is known as the "work product doctrine." Olen Properties, supra. To fall within this exception, however, the audit must have been created "in anticipation of litigation."

In the context in which most shipyard restoration will be conducted – e.g., to expand, sell, or simply to clean up the facility — the work product doctrine would not apply, because the work is not done in anticipation of a particular court case & "litigation"). However, in some instances — such as where liability issues may arise in an ongoing lawsuit, or in anticipation of a potential lawsuit– the doctrine may apply. Significantly, the doctrine applies not only to work done by an attorney, or even sent to an attorney, but may extend to work done by anyone, provided that it was done in anticipation of litigation. However, counsel needs to be involved in developing an audit that will fall within the work product doctrine.

3. Statutory Self-Evaluation Privilege

In recent years, fourteen states have created a statutory "self-evaluation privilege" for environmental audits. As shown in Exhibit Q, these states are: Arkansas, Colorado, Idaho, Illinois, Indiana, Kansas, Kentucky, Minnesota, Mississippi, Oregon, Texas, Utah, Virginia and Wyoming.

The extent of the various state protections are set forth in more detail in Exhibit Q. Generally speaking, however, these statutes permit companies to claim outright that any environmental audit that is conducted is protected from disclosure. Some are more limited, permitting companies to obtain immunity for violations that are discovered in an environmental audit, provided that the violations were voluntarily disclosed and promptly corrected.

Among the common requirements of most statutory protections are that documents comprising the environmental audit report be labeled "Environmental Audit Report: Privileged Document." The privilege is lost if it is asserted for a fraudulent purpose, if the material shows evidence of ongoing non-compliance, or if compliance efforts were not promptly initiated. Finally, EPA has taken the position that it may gain access to audits, even in states with audit privilege laws, and has said it will "scrutinize enforcement more closely" in such states. **EPA** Enforcement Manual, Monthly Bulletin, at 4-5 (July 1995).

4. Judicial Self-Evaluation Privilege

The self-evaluation privilege was originally a judicial creation designed to protect certain internal documents from discovery. The privilege has been developed through case law and applied in cases involving medical peer review, affirmative action, and securities investigations.

The self-evaluation privilege has not yet been applied to environmental audits when the government requests audit information but it has been applied in private party litigation. Reichold v. Textron, 157 F.R.D. 522 (N.D. Fla. 1994).

While the courts have not universally accepted the privilege or set concrete parameters, they will generally look to whether the information sought resulted from an internal review involving confidential self-analysis, and whether disclosure of the internal review will serve or harm the public interest.

D. PRACTICAL STEPS

The protections outlined above may be used independently of the other. A summary of the requirements of the various protections and the steps that parties should consider to maximize the availability of these protections is set forth below:

•Outside and corporate counsel should tightly control all meetings and documents related to an environmental audit.

•It must be made clear that counsel's participation in the communications is to provide legal advice, as opposed to business or other advice. The request for the attorney to provide legal advice relating to the audit should be made clear (e.g., by a written request to the attorney from the company, or as an introduction to any letter or memorandum written by the lawyer or consultant concerning the information provided).

•The front of the audit and related documents should be marked "Privileged and Confidential." Where a document is believed to be protected because of the work product doctrine, the document (or the context of the document) should identify in an obvious manner the litigation (even if the litigation has not yet begun but is merely "anticipated") for which the document was created.

•The audit and related documents generally should not be shared with anyone other than the attorney or the client. Although, in some cases, disclosure to a consultant or other agent of the attorney or client is necessary and will not result in a waiver of privilege, such disclosure should not be made without prior consultation with counsel. Preferably, the third party should be retained by the attorney as the attorney's agent.

•With the exception of privileged and other sensitive documents (which should be kept separately, to avoid inadvertent disclosure), environmental records should be centrally filed and kept at least as long as required by law. However, reports of audits should generally be retained only until the next audit and any corrective action is complete.

•Environmental audits are more likely to be protected if prepared with an eye toward furthering the public interest. The audit should include a statement regarding the corporation's environmental policy and how it relates broadly to the public interest.

Audits should comply with and advance the goal of any internal corporate policy statements, as well as applicable federal, state, and local laws.

•Environmental audits should be written to reflect the internal, self-evaluative, and self-analytical nature of the process.

- A corporation should consider the nature and purpose of the audit, to determine which of the various protections may be available.

- As for state statutory protections, each state law (summarized in Exhibit Q) should be consulted as to the specific requirements.

In sum, an environmental audit is an important component of an overall environmental management program to help a company identify and manage environmental compliance. Document retention is important to provide the tools for the checklist and the audit itself. The decision to conduct an audit, however, must be made by the company and its counsel, after an initial review of the potential problems at the site, the likelihood of cleanup or other requirements, and the liability issues surrounding possible disclosure of the audit.

The practical steps set forth above should be taken to preserve the company's options in litigation and otherwise. In some circumstances, however, there may be compelling reasons to disclose the audit results (e.g., if the audit can exonerate the company or if it can reduce penalties in an enforcement action). Legal counsel must be consulted to determine whether to audit, how to maximize protections against unwanted discovery, and whether the protections should be raised in a given case.

CHAPTER V

RESTORING OR PURCHASING CONTAMINATED PROPERTY: BROWNFIELDS PROGRAMS

The term "Brownfields" generally refers to contaminated industrial or commercial facilities where expansion or redevelopment may be hindered by fear of liability or by other concerns related to the contamination. Estimates of the numbers of such sites run as high as 450,000. Office of Technology Assessment, "State of the States on Brownfields," at 2 (June 1995).

Twenty-one states have implemented programs to encourage the cleanup and/or development of these sites. Many state programs are also designed to promote the voluntary cleanup by owners of contaminated property at active sites. As used herein, the term "Brownfields" refers to both of these types of programs.

The states with active programs are: California Colorado, Connecticut, Delaware, Illinois, Indiana, Maine, Massachusetts, Michigan, Minnesota, Missouri, Nebraska, New Jersey, North Carolina, Ohio, Oregon, Pennsylvania, Tennessee, Virginia, Washington, and Wisconsin. All but four of these states added their programs in just the last four years, and others are expected to follow. Furthermore, EPA has indicated (though not guaranteed) its willingness to honor assurances that are provided by states,27/ and Congress is now actively addressing whether EPA should adopt its own Brownfields program.28/

27/ See EPA Guidance On Agreements With Prospective Purchasers Of Contaminated Property and Model Prospective Purchase Agreement, 60 Fed. Reg. 34792 (July 3, 1995). This Guidance addresses instances in which EPA will reach agreements with (and provide liability assurances to) prospective purchasers of contaminated property. It also provides a Model for such agreements.

28/ E.g. H.R. **228** (introduced in 1994 and again in 1995). This year, Congressman Oxley,
(continued...)

The Brownfields issue could be relevant to shipyard restoration in two respects. First, a shipyard may want to expand its operations by purchasing neighboring land that is contaminated, and may want some assurances or need further incentives to do so in light of the potential for liability. Second, a shipyard that is operating on already contaminated land may obtain more lenient cleanup standards and other advantages if it performs the cleanup voluntarily, without prodding from EPA or a state agency.

State Brownfields programs can be critical in either context. Forty-five states now have their own "Superfund" laws, roughly paralleling the federal Superfund statute (CERCLA), discussed above. In addition, 18 states have various environmental requirements that must be met before property can be sold or otherwise transferred. In New Jersey, for example, owners and operators of "industrial establishments" that use hazardous substances must investigate the condition of their property and develop a cleanup plan as a condition to the business or real property being closed, sold, or transferred. N.J.S.A. 13:1K-6, et seq. (New Jersey Environmental Cleanup Responsibility Act, or "ECRA"). Although most of the state programs would not extend to the most severely contaminated sites (such as those that would be on the National Priorities List), and although at this point obtaining a clean bill of health from state agencies does not

---

28/(...continued)
perhaps the most influential member of the House with respect to Superfund and other environmental matters, proposed that:

> If a party is conducting a cleanup at a Brownfields site pursuant to a state program, EPA and private parties would be barred from commencing an administrative or judicial enforcement action against it.

July 17, 1995 Statement on Reforming Superfund, at 6-7.

preclude federal enforcement the state programs laws can be tremendously helpful in a number of ways:

First, seven states offer assurances in some form against liability e.g., covenants not to sue) for companies who purchase Brownfield sites or voluntarily clean up their own site. The seven include California, Indiana, Massachusetts (as a pilot program), Minnesota, Ohio, Oregon, and Virginia. OTA, "State of the States on Brownfields," at 17 & n.39 (June 1995).

Second, where companies are allowed to initiate cleanups voluntarily and work cooperatively with the states in performing the cleanup, the companies can avoid some of the cost and delay associated with enforcement driven programs. Under such an approach for example, remediation and state certification might take less time.

Third, cleanup costs may be lower because some state programs allow regulators to consider future use of a site when determining cleanup standards. Thus, for example, a site in an industrial area might not need to meet residential cleanup standards.

Finally, many state programs offer additional benefits, such as technical assistance or even financial support (such as finding for site assessments or cleanup).

In sum, 21 states already provide some assurances or at least incentives to shipyards who may want to purchase contaminated property or voluntarily clean up their own property, and more states are expected to follow. EPA has indicated that it will honor state assurances, at least to some degree, and Congress is considering legislation that would go so far as to bar enforcement at Brownfield sites. Shipyards in any of the "Brownfield" states will want to review these laws before undertaking restoration efforts, moreover, shipyards in every state could be affected by pending federal legislation.   In some cases, the Brownfield programs may provide enough

protection or other incentives for a company to purchase adjoining yet contaminated properties that are needed for expansion; in others, the programs may be sufficient for a company to undergo restoration now, to avoid risk of an enforcement driven (and thus longer and more expensive) cleanup later on.

CHAPTER VI

CLEANUP STANDARDS AND CRITERIA

Once a determination is made that remediation will be conducted either voluntarily or under the direction and control of a state or federal agency, the next difficult task is the selection of cleanup criteria. In this context, "cleanup criteria" means the concentration of chemical constituents that will be allowed to remain in the soil, sediment or groundwater after cleanup, or that will not require cleanup.

There exists no single source of federal or state cleanup standards applicable to all remediation activities. Instead, facility operators must consult several potential sources of cleanup standards and negotiate, when necessary, for acceptable limits.

The sources of cleanup criteria include the following:

A. background levels;

B. levels of detection;

C. technology-based limits;

D. existing standards and guidelines, including:

  1. drinking water standards;
  2. RCRA corrective action levels;
  3. RCRA universal treatment standards and contaminated debris;
  4. proposed hazardous waste identification rule ("HWIR") exit criteria;
  5. RCRA characteristic thresholds;
  6. Superfund soil screening levels;

7. Superfund applicable relevant and appropriate requirements ("ARARs");

8. PCB spill policy cleanup criteria; and

E. risk-based levels.

A. <u>BACKGROUND LEVELS</u>

Because the goal of a cleanup action may be perceived as removing the environmental burdens caused by a manufacturing operation, and therefore any potential future liability, natural background levels of chemical substances are often used as the starting point for determining whether contamination exists.

All metals and many organic substances occur in nature in varying concentrations. Once the natural background level is known, it makes little sense to require cleanup to lower levels. Therefore, background levels will usually provide a baseline for some constituents.

Other chemicals, however, do not occur in nature and therefore have no natural background levels. For these, any concentration in the environment implies potential liability. However, some of these chemicals are so ubiquitous that natural atmospheric deposition has created a <u>de facto</u> background level. To determine actual background levels for elements in soils, one must either consult established public sources or collect data in "pristine" locations on or near the cleanup site. The U.S. Geological Survey routinely collects data on background levels of elements in soils. Levels can range in concentration by orders of magnitude. The decision of what constitutes acceptable background levels at any particular site is generally a matter of policy.

In selecting background levels, one must also determine whether to use the highest, lowest or average values in a range or statistically derived value. EPA has published a reference on statistical methods for groundwater and uses these methods in determining whether groundwater

contamination has resulted from RCRA permitted treatment, storage and disposal facilities. See EPA, "Statistical Methods for Evaluating Groundwater Monitoring Data from Hazardous Waste Facilities" (1988). For soils, EPA normally will accept actual site data from non-industrial impacted portions of a facility and use the mean concentration to determine whether contamination has occurred.

B. LEVELS OF DETECTION

Some chemical constituents are considered so hazardous that cleanup criteria are driven by the levels of detection, when health-derived cleanup concentrations are lower than the ability of instrumentation to measure. There is no single list of acceptable detection limits. Instead, the level of detection will be affected by the sample matrix, the presence of other contaminants, and the analytical instrumentation. As technology evolves, the limits of detection are lowered. The list of analytical methods that EPA generally considers acceptable may be found in "Test Methods for Evaluating Solid Waste. Physical/Chemical Methods," EPA Publication No. SW-846 (3d ed. 1986).

C. TECHNOLOGY-BASED STANDARDS

In some cases, cleanup standards can be affected by the ability of technology to remove contaminants from the environment. Technology-based standards are used also to determine when waste materials may be placed on the ground as part of the cleanup. Under RCRA, wastes are first treated using best demonstrated available technology before they may be placed on the ground. The level of treatment achievable by BDAT becomes the land disposal restriction ("LDR") for the waste.

For contaminants already in the soil or groundwater, EPA may require the use of specified technologies and thereby create a de facto cleanup standard for residual contamination. There may be many soil and groundwater cleanup technologies available depending upon the nature of the site and contamination. These technologies are constantly evolving. Some of the more common technologies include solidification/stabilization, soil vapor extraction, biological treatment, soil washing, thermal absorption, incineration, and vitrification. Groundwater cleanup technologies include air stripping, carbon absorption, biological treatment, oxidation and physical/chemical treatment (Ph adjustment, settling, etc.).

EPA provides data on these technologies through its innovative treatment technologies data base. The database is available from EPA by calling the ITT Hotline at 800-245-4505.

D. EXISTING STANDARDS AND GUIDELINES

The most common sources of cleanup levels are those contained in existing federal and state regulations and guidelines. These are often based upon statutory requirements such as RCRA or CERCLA or, at the state level, by statutes dealing with protection of groundwater. Because these standards in some cases have been peer-reviewed or used in other cleanup actions, they have precedential value and effect.

However, these standards in many cases were not intended to fit every circumstance. Therefore, shipyards can argue innovatively in seeking to pick and choose the most appropriate criteria for each cleanup. Some of the more common forms of regulations/guidelines at the federal level include the following:

1. **Drinking Water Standards (MCLGs or MCLs)**

Maximum contaminated level goals ("MCLGs") and maximum contaminant levels ("MCLs") are drinking water standards established under the Safe Drinking Water Act, and are set forth in Exhibit R (40 C.F.R. pt. 141, subpt. F). The MCLGs are established at levels deemed necessary to protect public health. These have policy effect but are not legally binding. The MCLs are adopted after cost considerations are taken into account and are enforceable. See id. subpt. G (Exhibit R). Both MCLGs and MCLs are included as ARARs in establishing cleanup levels under CERCLA, as discussed below.

2. **RCRA Corrective Action Levels**

These levels were established as part of EPA's proposed RCRA Corrective Action Rule (published on July 27, 1990) and are used as default values in setting cleanup levels at solid waste management units under the RCRU corrective action program. See 55 Fed. Reg. 30,798, 30865-873 (July 27, 1990) (Exhibit S).

3. **Universal Treatment Standards**

On September 19,1994, EPA published Universal Treatment Standards ("UTS") to replace existing waste and source-specific land disposal restrictions and treatment standards for contaminated soils prior to land disposal. See 59 Fed. Reg. 47,980,48,047-106 (Sept. 19, 1994) (Exhibit T). The rule contains treatment standards for more than 200 organic and metal constituents for both wastewaters and non-wastewaters. For organic constituents, the proposed UTS are expressed as a total concentration level for each constituent. For metals, the UTS are expressed as levels measured in the leachate extract using the Toxicity Characteristic Leaching Procedure ("TCLP"). EPA has recently proposed additions to the UTS that would increase the

numbers of organic and metal-bearing constituents subject to the standards. EPA has also established treatment standards and methods of treatment for contaminated debris. See 40 C.F.R. $268.45, attached as Exhibit U.

4. **<u>Proposed HWIR Criteria</u>**

In addition to the UTS, EPA is about to propose exit criteria for hazardous constituents in contaminated media under the HWIR The HWIR exit criteria are expected to be levels of toxic constituents in contaminated soil or groundwater below which media will no longer be considered contaminated or subject to RCRA jurisdiction.

5. **<u>RCRA Characteristic Thresholds</u>**

The TCLP and the toxicity characteristic ("TC") were promulgated by EPA in 1990. See 40 C.F.R. § 261.24; Exhibit V. Under the toxicity characteristic, waste containing any one of **38** constituents (including metals, pesticides and organics) are regulated as hazardous if, during a laboratory leaching procedure, the wastes leach constituents at concentrations that exceed specified threshold levels. The toxicity characteristic is considered the entry level for regulation of wastes under RCRA. Generally, the regulatory levels for TC constituents were derived using health-based concentration limits and dilution and attenuation factors. The health-based limits were taken from one of three sources: (1) MCLs; (2) oral risk-specific doses ("RSD") for carcinogenic compounds using a 10^{-5} risk level; and (3) reference doses ("RfD") for non-carcinogens.

6. **<u>Superfund Soil Screening Levels</u>**

These levels are similar to RCRA corrective action levels and serve as default values in establishing soil criteria for cleanup under CERCLA. See <u>Draft Soil Screening Guidance</u>, EPA

Publication No. EPA/540R-94/l01 (1994) (Exhibit W). These levels are highly conservative and, if met, imply that no further cleanup is required to protect public health and the environment. The soil screening levels may not be appropriate at sites that are being cleaned up as industrial property and that can be restricted from further use by children and other sensitive "receptors."

7. **PCB Spill Policy**

PCB spill cleanups are governed by the TSCA. Under TSCA, EPA has established cleanup standards for restricted and unrestricted sites. See Section II.E and Exhibit N, above.

8. **Superfund ARARs**

Remedial actions performed at Superfund (CERCLA) sites must address any hazardous substances, pollutants or contaminants that will remain onsite to the degree required by any standard that is legally "applicable. . . or. . . relevant and appropriate" under the circumstances of the release. 42 U.S.C. § 9621(d)(2). Thus, not only must site cleanups generally comply with MCLGs and other federal cleanup standards, but they must also comply with such state and local standards as may be "applicable or relevant and appropriate."

E. RISK-BASED LEVELS

The determination of risk-based cleanup levels for any particular site can be an enormously complicated task, but is often necessary to avoid the imposition of extremely conservative default criteria. A risk assessment consists of a toxicity evaluation and exposure assessment. Critical factors that may influence the risk assessment include exposure pathways, potentially exposed populations, frequency and duration of potential exposure, transport and fate

of the chemical in the environment, and site characteristics such as paving, fencing, and distance to potential receptors.

For exposure assessments, the key is to identify all relevant exposure pathways and site "receptors." The exposure pathways will, in turn, depend upon exposure scenarios. The most common scenarios are for industrial and residential exposures. Other scenarios may include utility workers, recreational exposures, and agricultural pathways. Normally, the residential exposure scenarios will produce the most conservative results and will be used by regulators unless the property owner can demonstrate that unrestricted exposures are unlikely to occur. Once the exposure scenarios are established, the potential routes of exposure must be considered. These may include ingestion of groundwater or incidental quantities of soil, ingestion of fruits, vegetables, or fish that have been exposed to contamination, inhalation of vapors or dust, or dermal contact with water or soil. The receptors for each of these exposure routes may be school children, workers, residents, trespassers, etc.

The toxicity evaluation is the amount of each constituent to which a receptor may safely be exposed. This level will differ based upon whether the pollutant is a chronic or acute health risk, and upon the means and duration of exposure. EPA has established a daily RfD for many chemicals. The RfD is defined as an estimate, with an uncertainty factor, of the daily exposure to human populations (including sensitive subgroups) that is likely not to pose an appreciable risk of deleterious effects during a lifetime. The RfD is expressed in terms of milligrams per kilogram (ppm) of body weight per day. The RfD is a useful reference level from which to gauge the potential adverse health effects of a chemical at other dose levels. Ordinarily, doses

below the IfD will not likely cause adverse health effects, but may not be perceived as "risk free."

For carcinogens, EPA uses a weight-of-evidence scheme to rank chemicals under a classification system including:

A. carcinogens;

B. known probable carcinogens;

  1. limited human evidence but sufficient animal evidence of carcinogenicity;

  2. inadequate or no human evidence, but sufficient animal evidence;

C. possible human carcinogens;

D. not classifiable as to human carcinogenicity; and

E. evidence of non-carcinogenicity in humans.

The potential carcinogenicity of any particular chemical is derived from the slope factor of the dose response relationship of the carcinogen using a linear multi-stage model at the upper 95 percent confidence limit of the slope. Using this model, EPA can conservatively calculate a plausible upper bound estimate of the probability of the excess cancer risk for unit of dose over a lifetime. For other chemicals, which are not known or suspected to be carcinogens, EPA seeks to establish a low dose level at which there is no observed adverse effect.

In sum, shipyard facilities facing potential cleanup actions must carefully choose and be prepared to defend the use of appropriate cleanup criteria. The choice of cleanup criteria will play a significant role in determining the ultimate cost and feasibility of any environmental restoration. Among the many factors that must be taken into account in selecting criteria and

arguing for less stringent criteria are the intended future use of the property and limitation on the routes of exposure.

CHAPTER VII

MANAGING THE RESTORATION PROCESS

There is no “right” way to conduct environmental restoration. Unfortunately, there are innumerable ways in which a restoration activity can go wrong. The purpose of this chapter is to provide some practical advice on managing the restoration process to avoid the pitfalls that frequently occur.

The keys to a successful restoration are awareness, planning and coordination. The only way to avoid regulatory traps is to be aware of them. As early in the process as possible, the shipyard manager should begin to evaluate the regulatory programs that may become involved. Will the facility be excavating soil, dredging sediments, demolishing buildings, or curtailing use of waste management units or process units in which waste materials may remain? What are the implications on existing permits? Will a new process produce new or different pollutants? Will additional waste materials need to be managed? These and other questions need to be considered before the process begins.

The best way to initiate the planning process is through close coordination between management and production personnel and the environmental engineer or facility manager. Once the project scope is established, the environmental engineer or facility manager should commence a detailed environmental review of the proposed action. This review may take the form of an audit. If properly controlled, the audit document will likely enable a shipyard to manage the information confidentially until decisions are made regarding the necessary and appropriate actions, whether such actions include reporting, disclosure or cleanup. After the baseline audit evaluation of environmental impacts is complete, the environmental manager must evaluate the

effect of the project on the facility's permits, compliance status, and reporting obligations. This will usually require the advice of a knowledgeable attorney because of the breadth and complexity of the environmental laws and regulations. If this evaluation is conducted early in the process, it may be possible to alter the project focus, scope, or even location to minimize regulatory concerns. Indeed, in some cases, it may be better not to initiate a project at all if the environmental implications make the project no longer worthwhile.

Once the project is planned and the environmental issues are known, the shipyard must decide how to proceed. This will involve (a) selecting or negotiating the terms and conditions for investigation and cleanup; (b) dealing with agencies; and (c) avoiding pitfalls.

A. NEGOTIATING TERMS

Because each environmental restoration activity is different, we cannot suggest the best way to manage every restoration activity. If the activity is simple and can be conducted without directly implicating any environmental permitting or regulatory requirement, it may be possible to proceed without coordinating with or obtaining approval from state or federal environmental regulatory agencies. This could be true for construction of buildings and facilities that do not contain new sources of pollution. It may also be true for dredging or filling activities that occur within the scope of a nationwide permit. Other actions, however, may require notification or advance approval: Clean Air Act construction or Clean Water Act discharge permits for new sources; RCRA generator notification, spill reporting, etc. Whenever soil or groundwater contamination is involved, coordination with state or federal agencies will usually be necessary. This need for coordination may result from the notification obligations that arise if restoration activities reveal past spills that require reporting, or it may simply be prudent to obtain a formal

imprimatur for the remediation to preclude the possibility that agencies may later question the scope of the investigation or cleanup.

Although somewhat counter-intuitive, it may often turn out that the best way to proceed with an investigation or cleanup is pursuant to the endorcement authorities of the environmental statutes. Consent orders or consent agreements bring with them discretion and flexibility that may not exist under the regulatory compliance requirements. For example, if a restoration involves staging of contaminated soils after excavation, but prior to treatment or disposal, a consent order can be used to avoid RCRA permits for storage or to modify the RCRA storage requirements. Consent orders or agreements can also be used to supplant other applicable requirements for shipyard permits or to provide additional time to obtain such permits. Consent orders and agreements are not without risks, however. In nearly every case, they will contain time schedules for implementing the necessary actions and will specify detailed requirements for such actions. Failure to comply with the terms of such orders or agreements may be punishable by civil penalties, the amounts of which may need to be stipulated in advance. Thus, if an enforcement-related order or agreement is to be used, it must be carefully structured by counsel.

Part of the purpose of this negotiation process should be to secure as much flexibility as possible. Orders or agreements should have language that allows the facility to modify its obligations if new information is obtained. Unless clear violations of regulatory requirements are involved, the order or agreement should not contain penalty or stipulated penalty provisions. The purpose of the order or agreement should be carefully spelled out to ensure that all parties understand that the document is intended to facilitate a cleanup, not to obstruct or complicate it. Finally, whenever possible, the order or agreement should indicate that the action being taken

pursuant to the document meets the requirements of the applicable regulations and laws a consistent with the National Contingency Plan. This language will greatly ease the burden of maintaining a subsequent cost recovery action if other potentially responsible parties are identified.

A carefully drawn order will also assist shipyards in controlling costs. If the parties can agree up front on the amount of information required for the selection of a remedy, the order can help curb the usual pattern of sample collection and analysis, followed by a request for more sample collection and analysis, ad infinitum. The order should be intended to encourage actual cleanup, rather than to provide a mechanism for a never-ending environmental study of the site.

B. DEALING WITH AGENCIES

Any dealings with regulatory agencies require a fundamental understanding of the jurisdiction and limitations of the agencies. Most shipyard restoration actions will be undertaken pursuant to jurisdiction of state or local agencies based upon local groundwater protection statutes, regulatory requirements, or delegated federal authority. Even in these cases, there may be federal oversight as well. For every remedy involving PCB contamination, federal involvement under TSCA will be required, because only EPA has authority under TSCA. One of the first tasks, therefore, is to determine which agencies a shipyard will need to deal with and, within the agencies, which branch or office. This is not an easy task, as lines of communication and authority within agencies are often blurred. In every case in which a consent order is negotiated, the agency will probably be represented by personnel from an enforcement office as well as a program office (RCRA, air, water, etc.). Shipyard managers with experience in this area probably have participated in meetings with agencies attended by as many as six to ten or

more agency personnel each representing different departments or branches with some claim to jurisdiction. Shipyards should attempt to streamline this process as much as possible to avoid unnecessary delays and complications. However, it is important that all agencies with approval authority be involved in the negotiations in some way to preclude future roadblocks. One way to simplify the process is to narrow the issues as much as possible in the planning stage and not invite or sanction agency involvement in parts of the plan that do not require agency oversight. This task will require a thorough understanding of the legal issues involved in the projects. Another technique is to initiate the process of communications at a higher policy level within an agency and request that the agency appoint a single point of contact with authority to negotiate on behalf of the department. Some agencies have ombudsmen with the responsibility to help steer issues through the bureaucracy.

The need to understand and control agency bureaucracy[29/] applies to actions involving state agencies as well as EPA because the scope of jurisdiction between the federal and state

---

29/ In making decisions about the siting and operations of industrial facilities, federal agencies have recently been instructed to consider what have come to be known as concerns of "environmental justice." Generally speaking, the term environmental justice refers to an effort to ensure that environmental hazards are not disproportionately located near minority or low-income populations. The President has ordered federal agencies to consider these issues when making permitting and other decisions. See Exec. Order 12,898, 59 Fed. Reg. 7,629 (Feb. 11, 1994) ("promoting federal actions to address environmental justice in minority and low-income communities.")

It is not clear how this directive will impact shipyards. As noted, the impact will be seen primarily in the contexts of new construction and expansion, but it may also be seen where operations are changed such that new permits are required. At a minimum, shipyards should expect that new construction, expansion and restoration will undergo scrutiny - both by regulators and by minority or low-income communities -- to determine whether the activities are likely to expose minority and/or low-income residents disproportionately to environmental risks and burdens.

governments and even between the offices within each level of government are not always clear. Thus, shipyards need to account for the authority of EPA regions, vis-a-vis, headquarters, as well as the overlapping responsibility between EPA and state agencies. Even in delegated states, for example, EPA still retains veto authority over most permits. In addition, EPA always retains authority to initiate enforcement action.

In many cases, shipyards may encounter information either in the course of the baseline audit that precedes the restoration activity, or in conducting the investigation or cleanup itself that requires disclosure or reporting. See Section II.B.1, CERCLA Spill Reporting, above. Violations that are discovered in connection with environmental audits or assessments, voluntarily disclosed, and promptly corrected may qualify for penalty mitigation. See EPA Interim Enforcement Policy on Voluntary Environmental Audits, 60 Fed. Reg. 16,875 (April 3, 1995) (Exhibit P). Whether the conditions of the EPA policy are met is a matter that must be carefully reviewed by counsel. And, while the spill reporting requirements must be complied with, there usually exists a considerable amount of discretion in determining how disclosures need to be made and for negotiating the consequences of such disclosures. There is no simple answer to this question and advice of counsel is usually warranted.

C. **AVOIDING PITFALLS**

In conducting restoration that involves cleanup activity, the overarching goal should be to avoid RCRA jurisdiction whenever possible. Under CERCLA, for example, a cleanup can avoid the need for treatment permits, if conducted onsite. Similarly, under CERCLA, a remedy conducted onsite can, in some cases, minimize the applicability of LDRs. A RCRA-driven investigation and cleanup does not benefit from the same degree of flexibility. Thus, under

RCRA, placement of wastes on the ground incident to remediation may trigger LDRs and stringent RCR4 storage requirements. This can make the process of remediation difficult if large volumes of material need to be managed because, under RCRA, such materials can be managed or stored only in RCRA tanks, containers or containment buildings. Such materials cannot be placed on the ground unless LDR treatment standards have first been met. Avoiding RCRA will also avoid RCRA permit requirements. RCRA permitting brings along with it the onerous financial assurance requirements and the potential for facility-wide corrective action. Under corrective action, a small restoration activity can become a facility-wide nightmare (requiring cleanup of solid waste management units and more). Avoidance of RCRA whenever possible, therefore, is an important planning goal.

Another planning goal is avoidance of enforcement liability. The sources of such liability are numerous and are set forth in broad terms in Chapters II and III. Some of the key enforcement concerns are penalties and reporting requirements. Failure to obtain or comply with permits, false reporting or failure to report required information are sources of both civil and criminal liability, or even suspension of federal contracting rights. Careful planning and management of restoration activity are essential in minimizing these enforcement concerns for the corporation as well as the facility managers.

The restoration process must be a team event form inception through completion. The shipyard that makes wise use of its environmental managers, engineers and counsel throughout this process will experience fewer delays, minimize potential liability, and save costs.

EXHIBIT A

Please print or type (Form designed for use on elite (12-pitch) typewriter.) Form Approved OMB No. 2050-0039. Expires 9-30-91

UNIFORM HAZARDOUS WASTE MANIFEST

1 Generator's US EPA ID No. | Manifest Document No. | 2 Page 1 of | Information in the shaded areas is not required by Federal law

3 Generator's Name and Mailing Address

A. State Manifest Document Number

B. State Generator's ID

4 Generator's Phone ( )

5 Transporter 1 Company Name | 6 US EPA ID Number

C. State Transporter's ID

D. Transporter's Phone

7 Transporter 2 Company Name | 8 US EPA ID Number

E. State Transporter's ID

F. Transporter's Phone

9 Designated Facility Name and Site Address | 10 US EPA ID Number

G. State Facility's ID

H. Facility's Phone

11 US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	12 Containers No.	Type	13 Total Quantity	14 Unit Wt/Vol	I. Waste No.
a					
b					
c					
d					

GENERATOR

J. Additional Descriptions for Materials Listed Above

K. Handling Codes for Wastes Listed Above

15 Special Handling Instructions and Additional Information

16 **GENERATOR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name | Signature | Month Day Year

TRANSPORTER

17 Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name | Signature | Month Day Year

18 Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name | Signature | Month Day Year

FACILITY

19 Discrepancy Indication Space

20 Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.

Printed/Typed Name | Signature | Month Day Year

EPA Form 8700-22 (Rev. 9-88) Previous editions are obsolete.

Please print or type. (Form designed for use on elite (12-pitch) typewriter.) Form Approved. OMB No. 2050-0039. Expires

UNIFORM HAZARDOUS WASTE MANIFEST *(Continuation Sheet)*	21. Generator's US EPA ID No.	Manifest Document No.	22. Page	Information in the shaded areas is not required by Federal law.

23. Generator's Name	L. State Manifest Document Number
	M. State Generator's ID
24. Transporter ____ Company Name / 25. US EPA ID Number	N. State Transporter's ID
	O. Transporter's Phone
26. Transporter ____ Company Name / 27. US EPA ID Number	P. State Transporter's ID
	Q. Transporter's Phone

28. US DOT Description *(Including Proper Shipping Name, Hazard Class, and ID Number)*	29. Containers No.	29. Containers Type	30. Total Quantity	31. Unit Wt/Vol	R. Waste No.
a.					
b.					
c.					
d.					
e.					
f.					
g.					
h.					
i.					

S. Additional Descriptions for Materials Listed Above	T. Handling Codes for Wastes Listed Above

32. Special Handling Instructions and Additional Information

33. Transporter ____ Acknowledgement of Receipt of Materials		Date
Printed/Typed Name	Signature	Month Day Year
34. Transporter ____ Acknowledgement of Receipt of Materials		**Date**
Printed/Typed Name	Signature	Month Day Year

35. Discrepancy Indication Space

GENERATOR

TRANSPORTER

FACILITY

EPA Form 8700-22A (Rev. 9-88) Previous edition is obsolete.

UNIFORM HAZARDOUS WASTE MANIFEST

1 Generator's US EPA ID No. | Manifest Document No. | 2 Page 1 of | Information in the shaded areas is not required by Federal law

3 Generator's Name and Mailing Address | A. State Manifest Document Number | B. State Generator's ID

4 Generator's Phone ( )

5 Transporter 1 Company Name | 6 US EPA ID Number | C. State Transporter's ID | D. Transporter's Phone

7 Transporter 2 Company Name | 8 US EPA ID Number | E. State Transporter's ID | F. Transporter's Phone

9 Designated Facility Name and Site Address | 10 US EPA ID Number | G. State Facility's ID | H. Facility's Phone

11 US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	12 Containers No.	Type	13 Total Quantity	14 Unit Wt/Vol	I. Waste No.
a					
b					
c					
d					

J. Additional Descriptions for Materials Listed Above | K. Handling Codes for Wastes Listed Above

15 Special Handling Instructions and Additional Information

16 GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name | Signature | Month Day Year

17 Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name | Signature | Month Day Year

18 Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name | Signature | Month Day Year

19 Discrepancy Indication Space

20 Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.

Printed/Typed Name | Signature | Month Day Year

EPA Form 8700-22 (Rev. 9-88) Previous editions are obsolete.

The following statement must be included with each Uniform Hazardous Waste Manifest, either on the form, in the instructions to the form, or accompanying the form:

Public reporting burden for this collection of information is estimated to average: 37 minutes for generators, 15 minutes for transporters, and 10 minutes for treatment, storage and disposal facilities. This includes time for reviewing instructions, gathering data, and completing and reviewing the form. Send comments regarding the burden estimate, including suggestions for reducing this burden, to: Chief, Information Policy Branch, PM-223, U.S. Environmental Protection Agency, 401 M Street SW., Washington, DC 20460; and to the Office of Information and Regulatory Affairs, Office of Management and Budget, Washington, DC 20503.

GENERATORS

Item 1. Generator's U.S. EPA ID Number—Manifest Document Number

Enter the generator's U.S. EPA twelve digit identification number and the unique five digit number assigned to this Manifest (e.g., 00001) by the generator.

Item 2. Page 1 of ——

Enter the total number of pages used to complete this Manifest, i.e., the first page (EPA Form 8700-22) plus the number of Continuation Sheets (EPA Form 8700-22A), if any.

Item 3. Generator's Name and Mailing Address

Enter the name and mailing address of the generator. The address should be the location that will manage the returned Manifest forms.

Item 4. Generator's Phone Number

Enter a telephone number where an authorized agent of the generator may be reached in the event of an emergency.

Item 5. Transporter 1 Company Name

Enter the company name of the first transporter who will transport the waste.

Item 6. U.S. EPA ID Number

Enter the U.S. EPA twelve digit identification number of the first transporter identified in item 5.

Item 7. Transporter 2 Company Name

If applicable, enter the company name of the second transporter who will transport the waste. If more than two transporters are used to transport the waste, use a Continuation Sheet(s) (EPA Form 8700-22A) and list the transporters in the o[illegible] they will b[illegible] transporting the waste.

Item 8. U.S. EPA ID Number

If applicable, enter the U.S. EPA twelv[illegible] digit identification number of the secon[illegible] transporter identified in item 7.

NOTE: If more than two transporters ar[illegible] used, enter each additional transporter'[illegible] company name and U.S. EPA twelve dig[illegible] identification number in items 24-27 on th[illegible] Continuation Sheet (EPA Form 8700-22A) Each Continuation Sheet has space to recor[illegible] two additional transporters. Every trans[illegible] porter used between the generator and th[illegible] designated facility must be listed.

Item 9. Designated Facility Name and Site Address

Enter the company name and site addres[illegible] of the facility designated to receive th[illegible] waste listed on this Manifest. The addres[illegible] must be the site address, which may diffe[illegible] from the company mailing address.

Item 10. U.S. EPA ID Number

Enter the U.S. EPA twelve digit identifica[illegible] tion number of the designated facility iden[illegible] tified in item 9.

Item 11. U.S. DOT Description (Including Prop[illegible] er Shipping Name, Hazard Class, and I[illegible] Number (UN/NA))

Enter the U.S. DOT Proper Shipping Nam[illegible] Hazard Class, and ID Number (UN/NA) fo[illegible] each waste as identified in 49 CFR 17[illegible] through 177.

NOTE: If additional space is needed fo[illegible] waste descriptions, enter these additional de[illegible] scriptions in item 28 on the Continuatio[illegible] Sheet (EPA Form 8700-22A).

Item 12. Containers (No. and Type)

Enter the number of containers for eac[illegible] waste and the appropriate abbreviation fro[illegible] Table I (below) for the type of container.

Table I—Types of Containers

DM=Metal drums, barrels, kegs
DW=Wooden drums, barrels, kegs
DF=Fiberboard or plastic drums, barrels kegs
TP=Tanks portable
TT=Cargo tanks (tank trucks)
TC=Tank cars
DT=Dump truck
CY=Cylinders
CM=Metal boxes, cartons, cases (includin[illegible] roll-offs)
CW=Wooden boxes, cartons, cases
CF=Fiber or plastic boxes, cartons, cases
BA=Burlap, cloth, paper or plastic bags

Item 13. Total Quantity

Enter the total quantity of waste described on each line.

Item 14. Unit (Wt./Vol.)

Enter the appropriate abbreviation from Table II (below) for the unit of measure.

Table II—Units of Measure

G=Gallons (liquids only)
P=Pounds
T=Tons (2000 lbs)
Y=Cubic yards
L=Liters (liquids only)
K=Kilograms
M=Metric tons (1000 kg)
N=Cubic meters

Item 15. Special Handling Instructions and Additional Information

Generators may use this space to indicate special transportation, treatment, storage, or disposal information or Bill of Lading information. States may not require additional, new, or different information in this space. For international shipments, generators must enter in this space the point of departure (City and State) for those shipments destined for treatment, storage, or disposal outside the jurisdiction of the United States.

Item 16. Generator's Certification

The generator must read, sign (by hand), and date the certification statement. If a mode *other than* highway is used, the word "highway" should be lined out and the appropriate mode (rail, water, or air) inserted in the space below. If another mode *in addition to* the highway mode is used, enter the appropriate additional mode (e.g., *and rail*) in the space below.

Primary exporters shipping hazardous wastes to a facility located outside of the United States must add to the end of the first sentence of the certification the following words "and conforms to the terms of the EPA Acknowledgment of Consent to the shipment."

In signing the waste minimization certification statement, those generators who have not been exempted by statute or regulation from the duty to make a waste minimization certification under section 3002(b) of RCRA are also certifying that they have complied with the waste minimization requirements.

Generators may preprint the words, "On behalf of" in the signature block or may hand write this statement in the signature block prior to signing the generator certifications.

NOTE: All of the above information except the handwritten signature required in Item 16 may be preprinted.

* * * * *

TRANSPORTERS

Item 17. Transporter 1 Acknowledgement of Receipt of Materials

Enter the name of the person accepting the waste on behalf of the first transporter. That person must acknowledge acceptance of the waste described on the Manifest by signing and entering the date of receipt.

Item 18. Transporter 2 Acknowledgement of Receipt of Materials

Enter, if applicable, the name of the person accepting the waste on behalf of the second transporter. That person must acknowledge acceptance of the waste described on the Manifest by signing and entering the date of receipt.

NOTE: International Shipments—Transporter Responsibilities.

Exports—Transporters must sign and enter the date the waste left the United States in item 15 of Form 8700-22.

Imports—Shipments of hazardous waste regulated by RCRA and transported into the United States from another country must upon entry be accompanied by the U.S. EPA Uniform Hazardous Waste Manifest. Transporters who transport hazardous waste into the United States from another country are responsible for completing the Manifest (40 CFR 263.10(c)(1)).

Owners and Operators of Treatment, Storage, or Disposal Facilities

Item 19. Discrepancy Indication Space

The authorized representative of the designated (or alternate) facility's owner or operator must note in this space any significant discrepancy between the waste described on the Manifest and the waste actually received at the facility.

Owners and operators of facilities located in unauthorized States (i.e., the U.S. EPA administers the hazardous waste management program) who cannot resolve significant discrepancies within 15 days of receiving the waste must submit to their Regional Administrator (see list below) a letter with a copy of the Manifest at issue describing the discrepancy and attempts to reconcile it (40 CFR 264.72 and 265.72).

Owners and operators of facilities located in authorized States (i.e., those States that have received authorization from the U.S. EPA to administer the hazardous waste program) should contact their State agency for

information on State Discrepancy Report requirements.

EPA Regional Administrators

Regional Administrator, U.S. EPA Region I, J.F. Kennedy Fed. Bldg., Boston, MA 02203
Regional Administrator, U.S. EPA Region II, 26 Federal Plaza, New York, NY 10278
Regional Administrator, U.S. EPA Region III, 6th and Walnut Sts., Philadelphia, PA 19106
Regional Administrator, U.S. EPA Region IV, 345 Courtland St., NE., Atlanta, GA 30365
Regional Administrator, U.S. EPA Region V, 230 S. Dearborn St., Chicago, IL 60604
Regional Administrator, U.S. EPA Region VI, 1201 Elm Street, Dallas, TX 75270
Regional Administrator, U.S. EPA Region VII, 324 East 11th Street, Kansas City, MO 64106
Regional Administrator, U.S. EPA Region VIII, 1860 Lincoln Street, Denver, CO 80295
Regional Administrator, U.S. EPA Region IX, 215 Freemont Street, San Francisco, CA 94105
Regional Administrator, U.S. EPA Region X, 1200 Sixth Avenue, Seattle, WA 98101

Item 20. Facility Owner or Operator: Certification of Receipt of Hazardous Materials Covered by This Manifest Except as Noted in Item 19

Print or type the name of the person accepting the waste on behalf of the owner or operator of the facility. That person must acknowledge acceptance of the waste described on the Manifest by signing and entering the date of receipt.

Items A-K are not required by Federal regulations for intra- or interstate transportation. However, States may require generators and owners or operators of treatment, storage, or disposal facilities to complete some or all of items A-K as part of State manifest reporting requirements. Generators and owners and operators of treatment, storage, or disposal facilities are advised to contact State officials for guidance on completing the shaded areas of the Manifest.

159-154 O—94——5

EXHIBIT B

Subpart G—Closure and Post-Closure

SOURCE: 51 FR 16444, May 2, 1986, unless otherwise noted.

§264.110 Applicability.

Except as §264.1 provides otherwise:

(a) Sections 264.111 through 264.115 (which concern closure) apply to the owners and operators of all hazardous waste management facilities; and

(b) Sections 264.116 through 264.120 (which concern post-closure care) apply to the owners and operators of:

(1) All hazardous waste disposal facilities;

(2) Waste piles and surface impoundments from which the owner or operator intends to remove the wastes at closure to the extent that these sections are made applicable to such facilities in §264.228 or §264.258;

(3) Tank systems that are required under §264.197 to meet the requirements for landfills; and

(4) Containment buildings that are required under §264.1102 to meet the requirement for landfills.

[51 FR 16444, May 2, 1986, as amended at 51 FR 25472, July 14, 1986; 57 FR 37264, Aug. 18, 1992]

§264.111 Closure performance standard.

The owner or operator must close the facility in a manner that:

(a) Minimizes the need for further maintenance; and

(b) Controls, minimizes or eliminates, to the extent necessary to protect human health and the environment, post-closure escape of hazardous waste, hazardous constituents, leachate, contaminated run-off, or hazardous waste decomposition products to the ground or surface waters or to the atmosphere; and

(c) Complies with the closure requirements of this subpart, including, but not limited to, the requirements of §§264.178, 264.197, 264.228, 264.258, 264.280, 264.310, 264.351, 264.601 through 264.603, and 264.1102.

[51 FR 16444, May 2, 1986, as amended at 52 FR 46963, Dec. 10, 1987; 57 FR 37265, Aug. 18, 1992]

§264.112 Closure plan; amendment of plan.

(a) *Written plan.* (1) The owner or operator of a hazardous waste management facility must have a written closure plan. In addition, certain surface impoundments and waste piles from which the owner or operator intends to remove or decontaminate the hazardous waste at partial or final closure are required by §§264.228(c)(1)(i) and 264.258(c)(1)(i) to have contingent closure plans. The plan must be submitted with the permit application, in accordance with §270.14(b)(13) of this chapter, and approved by the Regional Administrator as part of the permit issuance procedures under part 124 of this chapter. In accordance with §270.32 of this chapter, the approved closure plan will become a condition of any RCRA permit.

(2) The Director's approval of the plan must ensure that the approved closure plan is consistent with §§264.111 through 264.115 and the applicable requirements of subpart F of this part, §§264.178, 264.197, 264.228, 264.258, 264.280, 264.310, 264.351, 264.601, and 264.1102. Until final closure is completed and certified in accordance with §264.115, a copy of the approved plan and all approved revisions must be furnished to the Director upon request, including requests by mail.

(b) *Content of plan.* The plan must identify steps necessary to perform partial and/or final closure of the facility at any point during its active life. The closure plan must include, at least:

(1) A description of how each hazardous waste management unit at the facility will be closed in accordance with §264.111;

(2) A description of how final closure of the facility will be conducted in accordance with §264.111. The description must identify the maximum extent of the operations which will be unclosed during the active life of the facility; and

(3) An estimate of the maximum inventory of hazardous wastes ever onsite over the active life of the facility and a detailed description of the methods to be used during partial closures and final closure, including, but not limited to, methods for removing, transporting, treating, storing, or disposing of all hazardous wastes, and identification of the type(s) of the off-site hazardous waste management units to be used, if applicable; and

(4) A detailed description of the steps needed to remove or decontaminate all hazardous waste residues and contaminated containment system components, equipment, structures, and soils during partial and final closure, including, but not limited to, procedures for cleaning equipment and removing contaminated soils, methods for sampling and testing surrounding soils, and criteria for determining the extent of decontamination required to satisfy the closure performance standard; and

(5) A detailed description of other activities necessary during the closure period to ensure that all partial closures and final closure satisfy the closure performance standards, including, but not limited to, ground-water monitoring, leachate collection, and run-on and run-off control; and

(6) A schedule for closure of each hazardous waste management unit and for

final closure of the facility. The schedule must include, at a minimum, the total time required to close each hazardous waste management unit and the time required for intervening closure activities which will allow tracking of the progress of partial and final closure. (For example, in the case of a landfill unit, estimates of the time required to treat or dispose of all hazardous waste inventory and of the time required to place a final cover must be included.)

(7) For facilities that use trust funds to establish financial assurance under § 264.143 or § 264.145 and that are expected to close prior to the expiration of the permit, an estimate of the expected year of final closure.

(c) *Amendment of plan.* The owner or operator must submit a written notification of or request for a permit modification to authorize a change in operating plans, facility design, or the approved closure plan in accordance with the applicable procedures in parts 124 and 270. The written notification or request must include a copy of the amended closure plan for review or approval by the Regional Administrator.

(1) The owner or operator may submit a written notification or request to the Regional Administrator for a permit modification to amend the closure plan at any time prior to the notification of partial or final closure of the facility.

(2) The owner or operator must submit a written notification of or request for a permit modification to authorize a change in the approved closure plan whenever:

(i) Changes in operating plans or facility design affect the closure plan, or

(ii) There is a change in the expected year of closure, if applicable, or

(iii) In conducting partial or final closure activities, unexpected events require a modification of the approved closure plan.

(3) The owner or operator must submit a written request for a permit modification including a copy of the amended closure plan for approval at least 60 days prior to the proposed change in facility design or operation, or no later than 60 days after an unexpected event has occurred which has affected the closure plan. If an unexpected event occurs during the partial or final closure period, the owner or operator must request a permit modification no later than 30 days after the unexpected event. An owner or operator of a surface impoundment or waste pile that intends to remove all hazardous waste at closure and is not otherwise required to prepare a contingent closure plan under § 264.228(c)(1)(i) or § 264.258(c)(1)(i), must submit an amended closure plan to the Regional Administrator no later than 60 days from the date that the owner or operator or Regional Administrator determines that the hazardous waste management unit must be closed as a landfill, subject to the requirements of § 264.310, or no later than 30 days from that date if the determination is made during partial or final closure. The Regional Administrator will approve, disapprove, or modify this amended plan in accordance with the procedures in parts 124 and 270. In accordance with § 270.32 of this chapter, the approved closure plan will become a condition of any RCRA permit issued.

(4) The Regional Administrator may request modifications to the plan under the conditions described in § 264.112(c)(2). The owner or operator must submit the modified plan within 60 days of the Regional Administrator's request, or within 30 days if the change in facility conditions occurs during partial or final closure. Any modifications requested by the Regional Administrator will be approved in accordance with the procedures in parts 124 and 270.

(d) *Notification of partial closure and final closure.* (1) The owner or operator must notify the Regional Administrator in writing at least 60 days prior to the date on which he expects to begin closure of a surface impoundment, waste pile, land treatment or landfill unit, or final closure of a facility with such a unit. The owner or operator must notify the Regional Administrator in writing at least 45 days prior to the date on which he expects to begin final closure of a facility with only treatment or storage tanks, container storage, or incinerator units to be closed. The owner or operator must notify the Regional Administrator in writing at least 45 days prior to the date on which he expects to begin partial or final closure of a boiler or industrial furnace, whichever is earlier.

(2) The date when he "expects to begin closure" must be either:

(i) No later than 30 days after the date on which any hazardous waste management unit receives the known final volume of hazardous wastes, or if there is a reasonable possibility that the hazardous waste management unit will receive additional hazardous wastes, no later than one year after the date on which the unit received the most recent volume of hazardous wastes. If the owner or operator of a hazardous waste management unit can demonstrate to the Regional Administrator that the hazardous waste management unit or facility has the capacity to receive additional hazardous wastes and he has taken all steps to prevent threats to human health and the environment, including compliance with all applicable permit requirements, the Regional Administrator may approve an extension to this one-year limit; or

(ii) For units meeting the requirements of § 264.113(d), no later than 30 days after the date on which the hazardous waste management unit receives the known final volume of non-hazardous wastes, or if there is a reasonable possibility that the hazardous waste management unit will receive additional non-hazardous wastes, no later than one year after the date on which the unit received the most recent volume of non-hazardous wastes. If the owner or operator can demonstrate to the Regional Administrator that the hazardous waste management unit has the capacity to receive additional non-hazardous wastes and he has taken, and will continue to take, all steps to prevent threats to human health and the environment, including compliance with all applicable permit requirements, the Regional Administrator may approve an extension to this one-year limit.

(3) If the facility's permit is terminated, or if the facility is otherwise ordered, by judicial decree or final order under section 3008 of RCRA, to cease receiving hazardous wastes or to close, then the requirements of this paragraph do not apply. However, the owner or operator must close the facility in accordance with the deadlines established in § 264.113.

(e) *Removal of wastes and decontamination or dismantling of equipment.* Nothing in this section shall preclude the owner or operator from removing hazardous wastes and decontaminating or dismantling equipment in accordance with the approved partial or final closure plan at any time before or after notification of partial or final closure.

[51 FR 16444, May 2, 1986, as amended at 52 FR 46963, Dec. 10, 1987; 53 FR 37935, Sept. 28, 1988; 54 FR 33394, Aug. 14, 1989; 56 FR 7207, Feb. 21, 1991; 57 FR 37265, Aug. 18, 1992]

EXHIBIT C

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

JUN 1 1 1992

OFFICE OF
SOLID WASTE AND EMERGENCY RESPONSE

Mr. Douglas H. Green
Piper & Marbury
1200 Nineteenth Street, N.W.
Washington, D.C. 20036-2430

Dear Mr. Green:

Thank you for your letter of April 30, 1992, requesting clarification of the Environmental Protection Agency's (EPA's) interpretation of the applicability of certain Resource Conservation and Recovery Act (RCRA) requirements to common excavation-type activities.

The particular situation which you presented in your letter involves excavation of soils, such as trenching operations for pipeline installation, where the soils may be hazardous by characteristic, or may contain listed hazardous wastes. We understand that your questions specifically relate to excavations being conducted on public roadways or at other similar locations that are not necessarily associated with or are part of a RCRA-regulated treatment, storage, or disposal facility.

In the example which you cited in your letter, the soils from the excavation or construction activities are temporarily moved within the area of contamination, and subsequently redeposited into the same excavated area. In these situations, we agree that such activity does not constitute treatment, storage, or disposal of a hazardous waste under RCRA. The activity of placing waste in the ground would not normally meet the regulatory definitions of "treatment" or "storage" (40 CFR 260.10). In addition, as you noted in your letter, movement of wastes within an area of contamination does not constitute "land disposal" and thus does not trigger RCRA hazardous waste disposal requirements (55 FR 8666, March 8, 1990). Thus, RCRA requirements such as land disposal restrictions would not apply.

With respect to generator requirements, as you indicated, a hazardous waste "generator" is one, by site, who produces a hazardous waste or first causes the waste to be regulated as hazardous (40 CFR 260.10). In the circumstances you described, the excavation does not "produce" the hazardous waste, nor does it subject the waste to hazardous waste regulation since, as

discussed above, the activity you described is not "treatment," storage," or "land disposal" of hazardous waste. Therefore, we agree that the activity is not subject to any generator requirements.

Please let me know if you have any further questions regarding this issue.

Sincerely yours,

Sylvia K. Lowrance, Director
Office of Solid Waste

EXHIBIT D

1987(71)

RCRA/SUPERFUND HOTLINE MONTHLY SUMMARY

AUGUST 87

7. Manufacturing Process Units

A manufacturing process unit that holds methylene chloride is located within a building that is slated for demolition. If the owner/operator (o/o) of the unit closes the building and ceases to operate the unit, how long does the o/o have before the methylene chloride must be shipped off-site?

First, the owner/operator of the unit should determine if the methylene chloride would be regulated as a hazardous waste. If the methylene chloride is a spent material it would be regulated as a solid waste if disposed of, used in a manner constituting disposal, burned for energy recovery, reclaimed, or accumulated speculatively (Section 261.2(c)(1), (2), (3), and (4)). If the spent methylene chloride solution contained, before use, ten percent (10%) or more methylene chloride, it would meet either the F001 or F002 listings in Section 261.31 and subsequently would also be regulated as a hazardous waste, assuming the methylene chloride regulated was utilized for its solvent properties. If the methylene chloride is a commercial chemical product and not a spent material, it would be regulated as a solid waste if used in a manner constituting disposal, disposed of, or burned for energy recovery (Section 261.2(c)(1) and (2)). If the product is reclaimed or accumulated speculatively it would not be regulated as a solid waste (Section 261.2(c)(3) and (4)). If the solvent is disposed of, used in a manner constituting disposal, or burned for energy recovery it is a solid waste and, due to the fact that it would meet the U080 listing in Section 261.33(f) it would also be regulated as a hazardous waste.

Assuming that the methylene chloride would be regulated as a hazardous waste, 40 CFR Section 261.4(c states that waste generated in a manufacturing process unit is not subject to regulation until the waste exits the unit or unless the waste remains in the unit for more than 90 days after the unit ceases to be operated. The October 30, 1980 Federal Register (46 FR 72024) explains that this allowance only applies when the generator is in compliance with Section 262.34. That is, generators of more than 1000 kg of hazardous waste per month have 90 days to store the waste without having to obtain a permit or interim status. As stated above, for manufacturing process units this "90-day clock" begins when the waste exists the unit or when the waste remains in the unit for more than 90 days after the unit ceases operation. However, the preamble in 45 FR 72024 states that in situations where the unit does cease to be operated for its primary purpose, the "clock" starts when the operation stops. Thus, the preamble implies that for the owner/operator of the above unit the accumulation period begins the day that the manufacturing process unit is shut down.

It was not the Agency's intent to regulate wastes in these units unless the waste exits the unit or remains in the unit for more than 90 days after the unit is no longer in operation. Therefore, although there is preamble language to the contrary, the accumulation period for the owner/operator of the above unit would begin either when the waste exits the unit, or if the waste remains in the unit for more than 90 days, the clock would then start on day 91.

Furthermore the October 30, 1980 Federal Register goes on to explain that if hazardous wastes do remain in the unit for more than 90 days after cessation of operation, "...EPA believes that these wastes should be fully regulated and that the units should be regulated as storage facilities. Thus, at that point, the owner/operator of the unit would have to have interim status..." (45 FR 72024).

Source: Mike Petruska (202) 475-6676
Matt Straus (202) 475-8551
Research: Chris Bryant

EXHIBIT E

TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES

[Note: All Comments/Notes Are Located at the End of This Table]

Hazardous substance	CASRN	Regulatory synonyms	Statutory			Final RQ	
			RQ	Code†	RCRA waste Number	Category	Pounds (Kg)
Acenaphthene	83329		1*	2		B	100 (45.4)
Acenaphthylene	208968		1*	2		D	5000 (2270)
Acetaldehyde	75070	Ethanal	1000	1,4	U001	C	1000 (454)
Acetaldehyde, chloro-	107200	Chloroacetaldehyde	1*	4	P023	C	1000 (454)
Acetaldehyde, trichloro-	75876	Chloral	1*	4	U034	D	5000 (2270)
Acetamide, N-(aminothioxomethyl)-	591082	1-Acetyl-2-thiourea	1*	4	P002	C	1000 (454)
Acetamide, N-(4-ethoxyphenyl)-	62442	Phenacetin	1*	4	U187	B	100 (45.4)
Acetamide, 2-fluoro-	640197	Fluoroacetamide	1*	4	P057	B	100 (45.4)
Acetamide, N-9H-fluoren-2-yl-	53963	2-Acetylaminofluorene	1*	4	U005	X	1 (0.454)
Acetic acid	64197		1000	1		D	5000 (2270)
Acetic acid (2,4-dichlorophenoxy)-	94757	2,4-D Acid 2,4-D, salts and esters	100	1,4	U240	B	100 (45.4)
Acetic acid, Lead(2+) salt	301042	Lead acetate	5000	1,4	U144	A	10 (4.54)
Acetic acid, thallium (1+) salt	563688	Thallium(I) acetate	1*	4	U214	B	100 (45.4)
Acetic acid, (2,4,5-trichlorophenoxy)	93765	2,4,5-T 2,4,5-T acid	100	1,4	U232	C	1000 (454)
Acetic acid, ethyl ester	141786	Ethyl acetate	1*	4	U112	D	5000 (2270)
Acetic acid, fluoro-, sodium salt	62748	Fluoroacetic acid, sodium salt	1*	4	P058	A	10 (4.54)
Acetic anhydride	108247		1000	1		D	5000 (2270)
Acetone	67641	2-Propanone	1*	4	U002	D	5000 (2270)
Acetone cyanohydrin	75865	Propanenitrile, 2-hydroxy-2-methyl-2-Methyllactonitrile.	10	1,4	P069	A	10 (4.54)
Acetonitrile	75058		1*	4	U003	D	5000 (2270)
Acetophenone	98862	Ethanone, 1-phenyl-	1*	4	U004	D	5000 (2270)
2-Acetylaminofluorene	53963	Acetamide, N-9H-fluoren-2-yl-	1*	4	U005	X	1 (0.454)
Acetyl bromide	506967		5000	1		D	5000 (2270)
Acetyl chloride	75365		5000	1,4	U006	D	5000 (2270)
1-Acetyl-2-thiourea	591082	Acetamide, N-(aminothioxomethyl)-	1*	4	P002	C	1000 (454)
Acrolein	107028	2-Propenal	1	1,2,4	P003	X	1 (0.454)
Acrylamide	79061	2-Propenamide	1*	4	U007	D	5000 (2270)
Acrylic acid	79107	2-Propenoic acid	1*	4	U008	D	5000 (2270)
Acrylonitrile	107131	2-Propenenitrile	100	1,2,4	U009	B	100 (45.4)
Adipic acid	124049		5000	1		D	5000 (2270)
Aldicarb	116063	Propanal, 2-methyl-2-(methylthio)-,O-[(methylamino)carbonyl]oxime.	1*	4	P070	X	1 (0.454)
Aldrin	309002	1,4,5,8-Dimethanonaphthalene, 1,2,3,4,10,10-10-hexachloro-1,4,4a,5,8,8a-hexahydro-, (1alpha, 4alpha,4abeta,5alpha,8alpha,8abeta)-.	1	1,2,4	P004	X	1 (0.454)
Allyl alcohol	107186	2-Propen-1-ol	100	1,4	P005	B	100 (45.4)
Allyl chloride	107051		1000	1		C	1000 (454)
Aluminum phosphide	20859738		1*	4	P006	B	100 (45.4)

Hazardous substance	CASRN	Regulatory synonyms	Statutory RQ	Code†	RCRA waste Number	Category	Pounds (Kg)
Aluminum sulfate	10043013		5000	1		D	5000 (2270)
5-(Aminomethyl)-3-isoxazolol	2763964	Muscimol 3(2H)-Isoxazolone, 5-(aminomethyl)-	1*	4	P007	C	1000 (454)
4-Aminopyridine	504245	4-Pyridinamine	1*	4	P008	C	1000 (454)
Amitrole	61825	1H-1,2,4-Triazol-3-amine	1*	4	U011	A	10 (4.54)
Ammonia	7664417		100	1		B	100 (45.4)
Ammonium acetate	631618		5000	1		D	5000 (2270)
Ammonium benzoate	1863634		5000	1		D	5000 (2270)
Ammonium bicarbonate	1066337		5000	1		D	5000 (2270)
Ammonium bichromate	7789095		1000	1		A	10 (4.54)
Ammonium bifluoride	1341497		5000	1		B	100 (45.4)
Ammonium bisulfite	10192300		5000	1		D	5000 (2270)
Ammonium carbamate	1111780		5000	1		D	5000 (2270)
Ammonium carbonate	506876		5000	1		D	5000 (2270)
Ammonium chloride	12125029		5000	1		D	5000 (2270)
Ammonium chromate	7788989		1000	1		A	10 (4.54)
Ammonium citrate, dibasic	3012655		5000	1		D	5000 (2270)
Ammonium fluoborate	13826830		5000	1		D	5000 (2270)
Ammonium fluoride	12125018		5000	1		B	100 (45.4)
Ammonium hydroxide	1336216		1000	1		C	1000 (454)
Ammonium oxalate	6009707 5972736 14258492		5000	1		D	5000 (2270)
Ammonium picrate	131748	Phenol, 2,4,6-trinitro-, ammonium salt	1*	4	P009	A	10 (4.54)
Ammonium silicofluoride	16919190		1000	1		C	1000 (454)
Ammonium sulfamate	7773060		5000	1		D	5000 (2270)
Ammonium sulfide	12135761		5000	1		B	100 (45.4)
Ammonium sulfite	10196040		5000	1		D	5000 (2270)
Ammonium tartrate	14307438 3164292		5000	1		D	5000 (2270)
Ammonium thiocyanate	1762954		5000	1		D	5000 (2270)
Ammonium vanadate	7803556	Vanadic acid, ammonium salt	1*	4	P119	C	1000 (454)
Amyl acetate	628637		1000	1		D	5000 (2270)
iso-Amyl acetate	123922						
sec-Amyl acetate	626380						
tert-Amyl acetate	625161						
Aniline	62533	Benzenamine	1000	1,4	U012	D	5000 (2270)
Anthracene	120127		1*	2		D	5000 (2270)
Antimony ††	7440360		1*	2		D	5000 (2270)
ANTIMONY AND COMPOUNDS	N.A.		1*	2			**
Antimony pentachloride	7647189		1000	1		C	1000 (454)
Antimony potassium tartrate	28300745		1000	1		B	100 (45.4)
Antimony tribromide	7789619		1000	1		C	1000 (454)
Antimony trichloride	10025919		1000	1		C	1000 (454)
Antimony trifluoride	7783564		1000	1		C	1000 (454)
Antimony trioxide	1309644		5000	1		C	1000 (454)
Argentate(1-), bis(cyano-C)-, potassium	506616	Potassium silver cyanide	1*	4	P099	X	1 (0.454)
Aroclor 1016	12674112	POLYCHLORINATED BIPHENYLS (PCBs)	10	1,2		X	1 (0.454)
Aroclor 1221	11104282	POLYCHLORINATED BIPHENYLS (PCBs)	10	1,2		X	1 (0.454)
Aroclor 1232	11141165	POLYCHLORINATED BIPHENYLS (PCBs)	10	1,2		X	1 (0.454)
Aroclor 1242	53469219	POLYCHLORINATED BIPHENYLS (PCBs)	10	1,2		X	1 (0.454)

TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES—Continued

[Note: All Comments/Notes Are Located at the End of This Table]

Hazardous substance	CASRN	Regulatory synonyms	Statutory			Final RQ	
			RQ	Code†	RCRA waste Number	Category	Pounds (Kg)
Aroclor 1248	12672296	POLYCHLORINATED BIPHENYLS (PCBs)	10	1,2		X	1 (0.454)
Aroclor 1254	11097691	POLYCHLORINATED BIPHENYLS (PCBs)	10	1,2		X	1 (0.454)
Aroclor 1260	11096825	POLYCHLORINATED BIPHENYLS (PCBs)	10	1,2		X	1 (0.454)
Arsenic ††	7440382		1*	2,3		X	1 (0.454)
Arsenic acid	1327522 7778394	Arsenic acid H3AsO4	1*	4	P010	X	1 (0.454)
Arsenic acid H3AsO4	1327522 7778394	Arsenic acid	1*	4	P010	X	1 (0.454)
ARSENIC AND COMPOUNDS	N.A.		1*	2			**
Arsenic disulfide	1303328		5000	1		X	1 (0.454)
Arsenic oxide As2O3	1327533	Arsenic trioxide	5000	1,4	P012	X	1 (0.454)
Arsenic oxide As2O5	1303282	Arsenic pentoxide	5000	1,4	P011	X	1 (0.454)
Arsenic pentoxide	1303282	Arsenic oxide As2O5	5000	1,4	P011	X	1 (0.454)
Arsenic trichloride	7784341		5000	1		X	1 (0.454)
Arsenic trioxide	1327533	Arsenic oxide As2O3	5000	1,4	P012	X	1 (0.454)
Arsenic trisulfide	1303339		5000	1		X	1 (0.454)
Arsine, diethyl-	692422	Diethylarsine	1*	4	P038	X	1 (0.454)
Arsinic acid, dimethyl-	75605	Cacodylic acid	1*	4	U136	X	1 (0.454)
Arsonous dichloride, phenyl-	696286	Dichlorophenylarsine	1*	4	P036	X	1 (0.454)
Asbestos †††	1332214		1*	2,3		X	1 (0.454)
Auramine	492808	Benzenamine, 4,4'-carbonimidoylbis (N,N-dimethyl-	1*	4	U014	B	100 (45.4)
Azaserine	115026	L-Serine, diazoacetate (ester)	1*	4	U015	X	1 (0.454)
Aziridine	151564	Ethylenimine	1*	4	P054	X	1 (0.454)
Aziridine, 2-methyl-	75558	1,2-Propylenimine	1*	4	P067	X	1 (0.454)
Azirino[2',3':3,4]pyrrolo[1,2-a]indole-4,7-dione,6-amino-8-[[(aminocarbonyl)oxy]methyl]-1,1a,2,8,8a,8b-hexahydro-8a-methoxy-5-methyl-,[1aS-(1aalpha,8beta,8aalpha,8balpha)]-.	50077	Mitomycin C	1*	4	U010	A	10 (4.54)
Barium cyanide	542621		10	1,4	P013	A	10 (4.54)
Benz[j]aceanthrylene, 1,2-dihydro-3-methyl-	56495	3-Methylcholanthrene	1*	4	U157	A	10 (4.54)
Benz[c]acridine	225514		1*	4	U016	B	100 (45.4)
Benzal chloride	98873	Benzene, dichloromethyl-	1*	4	U017	D	5000 (2270)
Benzamide, 3,5-dichloro-N-(1,1-dimethyl-2-propynyl)-	23950585	Pronamide	1*	4	U192	D	5000 (2270)
Benz[a]anthracene	56553	Benzo[a]anthracene 1,2-Benzanthracene	1*	2,4	U018	A	10 (4.54)
1,2-Benzanthracene	56553	Benz[a]anthracene Benzo[a]anthracene	1*	2,4	U018	A	10 (4.54)
Benz[a]anthracene, 7,12-dimethyl-	57976	7,12-Dimethylbenz[a]anthracene	1*	4	U094	X	1 (0.454)
Benzenamine	62533	Aniline	1000	1,4	U012	D	5000 (2270)
Benzenamine, 4,4'-carbonimidoylbis (N,N-dimethyl-	492808	Auramine	1*	4	U014	B	100 (45.4)
Benzenamine, 4-chloro-	106478	p-Chloroaniline	1*	4	P024	C	1000 (454)

Hazardous substance	CASRN	Regulatory synonyms	RQ	Code†	RCRA waste Number	Category	Pounds (Kg)
Benzenamine, 4-chloro-2-methyl-, hydrochloride	3165933	4-Chloro-o-toluidine, hydrochloride	1*	4	U049	B	100 (45.4)
Benzenamine, N,N-dimethyl-4-(phenylazo-)	60117	p-Dimethylaminoazobenzene	1*	4	U093	A	10 (4.54)
Benzenamine, 2-methyl-	95534	o-Toluidine	1*	4	U328	B	100 (45.4)
Benzenamine, 4-methyl-	106490	p-Toluidine	1*	4	U353	B	100 (45.4)
Benzenamine, 4,4'-methylenebis(2-chloro-	101144	4,4'-Methylenebis(2-chloroaniline)	1*	4	U158	A	10 (4.54)
Benzenamine, 2-methyl-, hydrochloride	636215	o-Toluidine hydrochloride	1*	4	U222	B	100 (45.4)
Benzenamine, 2-methyl-5-nitro-	99558	5-Nitro-o-toluidine	1*	4	U181	B	100 (45.4)
Benzenamine, 4-nitro-	100016	p-Nitroaniline	1*	4	P077	D	5000 (2270)
Benzene	71432		1000	1,2,3,4	U019	A	10 (4.54)
Benzeneacetic acid, 4-chloro-alpha-(4-chlorophenyl)-alpha-hydroxy-, ethyl ester	510156	Chlorobenzilate	1*	4	U038	A	10 (4.54)
Benzene, 1-bromo-4-phenoxy-	101553	4-Bromophenyl phenyl ether	1*	2,4	U030	B	100 (45.4)
Benzenebutanoic acid, 4-[bis(2-chloroethyl)amino]-	305033	Chlorambucil	1*	4	U035	A	10 (4.54)
Benzene, chloro-	108907	Chlorobenzene	100	1,2,4	U037	B	100 (45.4)
Benzene, chloromethyl-	100447	Benzyl chloride	100	1,4	P028	B	100 (45.4)
Benzenediamin, ar-methyl-	95807 496720 823405	Toluenediamine	1*	4	U221	A	10 (4.54)
1,2-Benzenedicarboxylic acid, dioctyl ester	117840	Di-n-octyl phthalate	1*	2,4	U107	D	5000 (2270)
1,2-Benzenedicarboxylic acid, [bis(2-ethylhexyl)]-ester.	117817	Bis (2-ethylhexyl)phthalate Diethylhexyl phthalate	1*	2,4	U028	B	100 (45.4)
1,2-Benzenedicarboxylic acid, dibutyl ester	84742	Di-n-butyl phthalate Dibutyl phthalate n-Butyl phthalate	100	1,2,4	U069	A	10 (4.54)
1,2-Benzenedicarboxylic acid, diethyl ester	84662	Diethyl phthalate	1*	2,4	U088	C	1000 (454)
1,2-Benzenedicarboxylic acid, dimethyl ester	131113	Dimethyl phthalate	1*	2,4	U102	D	5000 (2270)
Benzene, 1,2-dichloro-	95501	o-Dichlorobenzene 1,2-Dichlorobenzene	100	1,2,4	U070	B	100 (45.4)
Benzene, 1,3-dichloro-	541731	m-Dichlorobenzene 1,3-Dichlorobenzene	1*	2,4	U071	B	100 (45.4)
Benzene, 1,4-dichloro-	106467	p-Dichlorobenzene 1,4-Dichlorobenzene	100	1,2,4	U072	B	100 (45.4)
Benzene, 1,1'-(2,2-dichloroethylidene)bis[4-chloro-	72548	DDD TDE 4,4' DDD	1	1,2,4	U060	X	1 (0.454)
Benzene, dichloromethyl-	98873	Benzal chloride	1*	4	U017	D	5000 (2270)
Benzene, 1,3-diisocyanatomethyl-	584849 91087 26471625	Toluene diisocyanate	1*	4	U223	B	100 (45.4)
Benzene, dimethyl	1330207	Xylene (mixed)	1000	1,4	U239	C	1000 (454)
m-Benzene, dimethyl	108383	m-Xylene.					
o-Benzene, dimethyl	95476	o-Xylene.					
p-Benzene, dimethyl	106423	p-Xylene.					
1,3-Benzenediol	108463	Resorcinol	1000	1,4	U201	D	5000 (2270)
1,2-Benzenediol,4-[1-hydroxy-2-(methylamino)ethyl]-	51434	Epinephrine	1*	4	P042	C	1000 (454)
Benzeneethanamine, alpha,alpha-dimethyl-	122098	alpha,alpha-Dimethylphenethylamine	1*	4	P046	D	5000 (2270)
Benzene, hexachloro-	118741	Hexachlorobenzene	1*	2,4	U127	A	10 (4.54)
Benzene, hexahydro-	110827	Cyclohexane	1000	1,4	U056	C	1000 (454)
Benzene, hydroxy-	108952	Phenol	1000	1,2,4	U188	C	1000 (454)
Benzene, methyl-	108883	Toluene	1000	1,2,4	U220	C	1000 (454)

TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES—Continued

[Note: All Comments/Notes Are Located at the End of This Table]

Hazardous substance	CASRN	Regulatory synonyms	Statutory RQ	Statutory Code†	Statutory RCRA waste Number	Final RQ Category	Final RQ Pounds (Kg)
Benzene, 2-methyl-1,3-dinitro-	606202	2,6-Dinitrotoluene	1000	1,2,4	U106	B	100 (45.4)
Benzene, 1-methyl-2,4-dinitro-	121142	2,4-Dinitrotoluene	1000	1,2,4	U105	A	10 (4.54)
Benzene, 1-methylethyl-	98828	Cumene	1*	4	U055	D	5000 (2270)
Benzene, nitro-	98953	Nitrobenzene	1000	1,2,4	U169	C	1000 (454)
Benzene, pentachloro-	608935	Pentachlorobenzene	1*	4	U183	A	10 (4.54)
Benzene, pentachloronitro-	82688	Pentachloronitrobenzene (PCNB)	1*	4	U185	B	100 (45.4)
Benzenesulfonic acid chloride	98099	Benzenesulfonyl chloride	1*	4	U020	B	100 (45.4)
Benzenesulfonyl chloride	98099	Benzenesulfonic acid chloride	1*	4	U020	B	100 (45.4)
Benzene, 1,2,4,5-tetrachloro-	95943	1,2,4,5-Tetrachlorobenzene	1*	4	U207	D	5000 (2270)
Benzenethiol	108985	Thiophenol	1*	4	P014	B	100 (45.4)
Benzene, 1,1'-(2,2,2-trichloroethylidene)bis[4-chloro-	50293	DDT 4,4'DDT	1	1,2,4	U061	X	1 (0.454)
Benzene, 1,1'-(2,2,2-trichloroethylidene) bis[4-methoxy-	72435	Methoxychlor	1	1,4	U247	X	1 (0.454)
Benzene, (trichloromethyl)-	98077	Benzotrichloride	1*	4	U023	A	10 (4.54)
Benzene, 1,3,5-trinitro-	99354	1,3,5-Trinitrobenzene	1*	4	U234	A	10 (4.54)
Benzidine	92875	(1,1'-Biphenyl)-4,4'diamine	1*	2,4	U021	X	1 (0.454)
1,2-Benzisothiazol-3(2H)-one, 1,1-dioxide	81072	Saccharin and salts	1*	4	U202	B	100 (45.4)
Benzo[a]anthracene	56553	Benz[a]anthracene 1,2-Benzanthracene	1*	2,4	U018	A	10 (4.54)
Benzo[b]fluoranthene	205992		1*	2		X	1 (0.454)
Benzo(k)fluoranthene	207089		1*	2		D	5000 (2270)
Benzo[j,k]fluorene	206440	Fluoranthene	1*	2,4	U120	B	100 (45.4)
1,3-Benzodioxole, 5-(1-propenyl)-	120581	Isosafrole	1*	4	U141	B	100 (45.4)
1,3-Benzodioxole, 5-(2-propenyl)-	94597	Safrole	1*	4	U203	B	100 (45.4)
1,3-Benzodioxole, 5-propyl-	94586	Dihydrosafrole	1*	4	U090	A	10 (4.54)
Benzoic acid	65850		5000	1		D	5000 (2270)
~~Benzonitrile~~	100470		1000	1		D	5000 (2270)
Benzo [rst]pentaphene	189559	Dibenz[a,i]pyrene	1*	4	U064	A	10 (4.54)
Benzo[ghi]perylene	191242		1*	2		D	5000 (2270)
2H-1-Benzopyran-2-one, 4-hydroxy-3-(3-oxo-1-phenyl-butyl)-, & salts, when present at concentrations greater than 0.3%	81812	Warfarin, & salts, when present at concentrations greater than 0.3%.	1*	4	P001	B	100 (45.4)
Benzo[a]pyrene	50328	3,4-Benzopyrene	1*	2,4	U022	X	1 (0.454)
3,4-Benzopyrene	50328	Benzo[a]pyrene	1*	2,4	U022	X	1 (0.454)
p-Benzoquinone	106514	2,5-Cyclohexadiene-1,4-dione	1*	4	U197	A	10 (4.54)
Benzotrichloride	98077	Benzene, (trichloromethyl)-	1*	4	U023	A	10 (4.54)
Benzoyl chloride	98884		1000	1		C	1000 (454)
1,2-Benzphenanthrene	218019	Chrysene	1*	2,4	U050	B	100 (45.4)
Benzyl chloride	100447	Benzene, chloromethyl-	100	1,4	P028	B	100 (45.4)
Beryllium ††	7440417	Beryllium dust ††	1*	2,3,4	P015	A	10 (4.54)
BERYLLIUM AND COMPOUNDS	N.A.		1*	2			**
Beryllium chloride	7787475		5000	1		X	1 (0.454)
Beryllium dust ††	7440417	Beryllium ††	1*	2,3,4	P015	A	10 (4.54)
Beryllium fluoride	7787497		5000	1		X	1 (0.454)
Beryllium nitrate	13597994 7787555		5000	1		X	1 (0.454)
alpha—BHC	319846		1*	2		A	10 (4.54)
beta—BHC	319857		1*	2		X	1 (0.454)
~~delta—BHC~~	319868		1*	2		X	1 (0.454)
gamma—BHC	58899	Cyclohexane, 1,2,3,4,5,6-hexachloro-,(1alpha, 2alpha,3beta,4alpha,5alpha,6beta)- Hexachlorocyclohexane (gamma isomer) Lindane.	1	1,2,4	U129	X	1 (0.454)
2,2'-Bioxirane	1464535	1,2:3,4-Diepoxybutane	1*	4	U085	A	10 (4.54)
(1,1'-Biphenyl)-4,4'diamine	92875	Benzidine	1*	2,4	U021	X	1 (0.454)
[1,1'-Biphenyl]-4,4'diamine,3,3'dichloro-	91941	3,3'-Dichlorobenzidine	1*	2,4	U073	X	1 (0.454)
[1,1'-Biphenyl]-4,4'diamine,3,3'dimethoxy-	119904	3,3'-Dimethoxybenzidine	1*	4	U091	B	100 (45.4)
[1,1'Biphenyl]-4,4'-diamine,3,3'-dimethyl-	119937	3,3'-Dimethylbenzidine	1*	4	U095	A	10 (4.54)
Bis (2-chloroethyl) ether	111444	Dichloroethyl ether Ethane,1,1'-oxybis[2-chloro-	1*	2,4	U025	A	10 (4.54)
Bis(2-chloroethoxy) methane	111911	Dichloromethoxy ethane Ethane, 1,1'-[methylenebis(oxy)]bis[2-chloro-	1*	2,4	U024	C	1000 (454)
Bis (2-ethylhexyl)phthalate	117817	Diethylhexyl phthalate 1,2-Benzenedicarboxylic acid, [bis(2-ethylhexyl)] ester	1*	2,4	U028	B	100 (45.4)
Bromoacetone	598312	2-Propanone, 1-bromo-	1*	4	P017	C	1000 (454)
Bromoform	75252	Methane, tribromo-	1*	2,4	U225	B	100 (45.4)
4-Bromophenyl phenyl ether	101553	Benzene, 1-bromo-4-phenoxy-	1*	2,4	U030	B	100 (45.4)
Brucine	357573	Strychnidin-10-one, 2,3-dimethoxy-	1*	4	P018	B	100 (45.4)
1,3-Butadiene, 1,1,2,3,4,4-hexachloro-	87683	Hexachlorobutadiene	1*	2,4	U128	X	1 (0.454)
1-Butanamine, N-butyl-N-nitroso-	924163	N-Nitrosodi-n-butylamine	1*	4	U172	A	10 (4.54)
1-Butanol	71363	n-Butyl alcohol	1*	4	U031	D	5000 (2270)
2-Butanone	78933	Methyl ethyl ketone (MEK)	1*	4	U159	D	5000 (2270)
2-Butanone peroxide	1338234	Methyl ethyl ketone peroxide	1*	4	U160	A	10 (4.54)
2-Butanone, 3,3-dimethyl-1-(methylthio)-, O[(methylamino)carbonyl] oxime.	39196184	Thiofanox	1*	4	P045	B	100 (45.4)
2-Butenal	123739 4170303	Crotonaldehyde	100	1,4	U053	B	100 (45.4)
2-Butene, 1,4-dichloro-	764410	1,4-Dichloro-2-butene	1*	4	U074	X	1 (0.454)
2-Butenoic acid, 2-methyl-, 7[[2,3-dihydroxy-2-(1-methoxyethyl)-3-methyl-1-oxobutoxy]methyl]-2,3,5,7a-tetrahydro-1H-pyrrolizin-1-yl ester, [1S-[1alpha(Z),7(2S*,3R*),7aalpha]]-	303344	Lasiocarpine	1*	4	U143	A	10 (4.54)
Butyl acetate	123864		5000	1		D	5000 (2270)
iso-Butyl acetate	110190						
sec-Butyl acetate	105464						
tert-Butyl acetate	540885						
n-Butyl alcohol	71363	1-Butanol	1*	4	U031	D	5000 (2270)
Butylamine	109739		1000	1		C	1000 (454)
	78819						

TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES—Continued

[Note: All Comments/Notes Are Located at the End of This Table]

Hazardous substance	CASRN	Regulatory synonyms	Statutory RQ	Statutory Code†	Statutory RCRA waste Number	Final RQ Category	Final RQ Pounds (Kg)
sec-Butylamine	513495 13952846						
tert-Butylamine	75649						
Butyl benzyl phthalate	85687		1*	2		B	100 (45.4)
n-Butyl phthalate	84742	Di-n-butyl phthalate Dibutyl phthalate 1,2-Benzenedicarboxylic acid, dibutyl ester	100	1,2,4	U069	A	10 (4.54)
Butyric acid	107926		5000	1		D	5000 (2270)
iso-Butyric acid	79312						
Cacodylic acid	75605	Arsinic acid, dimethyl-	1*	4	U136	X	1 (0.454)
Cadmium ††	7440439		1*	2		A	10 (4.54)
Cadmium acetate	543908		100	1		A	10 (4.54)
CADMIUM AND COMPOUNDS	N.A.		1*	2			**
Cadmium bromide	7789426		100	1		A	10 (4.54)
Cadmium chloride	10108642		100	1		A	10 (4.54)
Calcium arsenate	7778441		1000	1		X	1 (0.454)
Calcium arsenite	52740166		1000	1		X	1 (0.454)
Calcium carbide	75207		5000	1		A	10 (4.54)
Calcium chromate	13765190	Chromic acid H2CrO4, calcium salt	1000	1,4	U032	A	10 (4.54)
Calcium cyanide	592018	Calcium cyanide Ca(CN)2	10	1,4	P021	A	10 (4.54)
Calcium cyanide Ca(CN)2	592018	Calcium cyanide	10	1,4	P021	A	10 (4.54)
Calcium dodecylbenzenesulfonate	26264062		1000	1		C	1000 (454)
Calcium hypochlorite	7778543		100	1		A	10 (4.54)
Camphene, octachloro-	8001352	Toxaphene	1	1,2,4	P123	X	1 (0.454)
Captan	133062		10	1		A	10 (4.54)
Carbamic acid, ethyl ester	51796	Ethyl carbamate (urethane)	1*	4	U238	B	100 (45.4)
Carbamic acid, methylnitroso-, ethyl ester	615532	N-Nitroso-N-methylurethane	1*	4	U178	X	1 (0.454)
Carbamic chloride, dimethyl-	79447	Dimethylcarbamoyl chloride	1*	4	U097	X	1 (0.454)
Carbamodithioic acid, 1,2-ethanediylbis, salts & esters	111546	Ethylenebisdithiocarbamic acid, salts & esters	1*	4	U114	D	5000 (2270)
Carbamothioic acid, bis(1-methylethyl)-, S-(2,3-dichloro-2-propenyl) ester	2303164	Diallate	1*	4	U062	B	100 (45.4)
Carbaryl	63252		100	1		B	100 (45.4)
Carbofuran	1563662		10	1		A	10 (4.54)
Carbon disulfide	75150		5000	1,4	P022	B	100 (45.4)
Carbon oxyfluoride	353504	Carbonic difluoride	1*	4	U033	C	1000 (454)
Carbon tetrachloride	56235	Methane, tetrachloro-	5000	1,2,4	U211	A	10 (4.54)
Carbonic acid, dithallium(1+) salt	6533739	Thallium(I) carbonate	1*	4	U215	B	100 (45.4)
Carbonic dichloride	75445	Phosgene	5000	1,4	P095	A	10 (4.54)
Carbonic difluoride	353504	Carbon oxyfluoride	1*	4	U033	C	1000 (454)

Hazardous substance	CASRN	Regulatory synonyms	Statutory RQ	Statutory Code†	Statutory RCRA waste Number	Final RQ Category	Final RQ Pounds (Kg)
Carbonochloridic acid, methyl ester	79221	Methyl chlorocarbonate Methyl chloroformate	1*	4	U156	C	1000 (454)
Chloral	75876	Acetaldehyde, trichloro-	1*	4	U034	D	5000 (2270)
Chlorambucil	305033	Benzenebutanoic acid, 4-[bis(2-chloroethyl)amino]-	1*	4	U035	A	10 (4.54)
Chlordane	57749	Chlordane, alpha & gamma isomers Chlordane, technical 4,7-Methano-1H-indene, 1,2,4,5,6,7,8,8-octachloro-2,3,3a,4,7,7a-hexahydro-	1	1,2,4	U036	X	1 (0.454)
CHLORDANE (TECHNICAL MIXTURE AND METABOLITES)	N.A.		1*	2			**
Chlordane, alpha & gamma isomers	57749	Chlordane Chlordane, technical 4,7-Methano-1H-indene, 1,2,4,5,6,7,8,8-octachloro-2,3,3a,4,7,7a-hexahydro-	1	1,2,4	U036	X	1 (0.454)
Chlordane, technical	57749	Chlordane Chlordane, alpha & gamma isomers 4,7-Methano-1H-indene, 1,2,4,5,6,7,8,8-octachloro-2,3,3a,4,7,7a-hexahydro-	1	1,2,4	U036	X	1 (0.454)
CHLORINATED BENZENES	N.A.		1*	2			**
CHLORINATED ETHANES	N.A.		1*	2			**
CHLORINATED NAPHTHALENE	N.A.		1*	2			**
CHLORINATED PHENOLS	N.A.		1*	2			**
Chlorine	7782505		10	1		A	10 (4.54)
Chlornaphazine	494031	Naphthalenamine, N,N'-bis(2-chloroethyl)-	1*	4	U026	B	100 (45.4)
Chloroacetaldehyde	107200	Acetaldehyde, chloro-	1*	4	P023	C	1000 (454)
CHLOROALKYL ETHERS	N.A.		1*	2			**
p-Chloroaniline	106478	Benzenamine, 4-chloro-	1*	4	P024	C	1000 (454)
Chlorobenzene	108907	Benzene, chloro-	100	1,2,4	U037	B	100 (45.4)
Chlorobenzilate	510156	Benzeneacetic acid, 4-chloro-alpha-(4-chlorophenyl)-alpha-hydroxy-, ethyl ester.	1*	4	U038	A	10 (4.54)
4-Chloro-m-cresol	59507	p-Chloro-m-cresol Phenol, 4-chloro-3-methyl-	1*	2,4	U039	D	5000 (2270)
p-Chloro-m-cresol	59507	Phenol, 4-chloro-3-methyl- 4-Chloro-m-cresol	1*	2,4	U039	D	5000 (2270)
Chlorodibromomethane	124481		1*	2		B	100 (45.4)
Chloroethane	75003		1*	2		B	100 (45.4)
2-Chloroethyl vinyl ether	110758	Ethene, 2-chloroethoxy-	1*	2,4	U042	C	1000 (454)
Chloroform	67663	Methane, trichloro-	5000	1,2,4	U044	A	10 (4.54)
Chloromethyl methyl ether	107302	Methane, chloromethoxy-	1*	4	U046	A	10 (4.54)
beta-Chloronaphthalene	91587	Naphthalene, 2-chloro- 2-Chloronaphthalene	1*	2,4	U047	D	5000 (2270)
2-Chloronaphthalene	91587	beta-Chloronaphthalene Naphthalene, 2-chloro-	1*	2,4	U047	D	5000 (2270)
2-Chlorophenol	95578	o-Chlorophenol Phenol, 2-chloro-	1*	2,4	U048	B	100 (45.4)
o-Chlorophenol	95578	Phenol, 2-chloro- 2-Chlorophenol	1*	2,4	U048	B	100 (45.4)
4-Chlorophenyl phenyl ether	7005723		1*	2		D	5000 (2270)
1-(o-Chlorophenyl)thiourea	5344821	Thiourea, (2-chlorophenyl)-	1*	4	P026	B	100 (45.4)
3-Chloropropionitrile	542767	Propanenitrile, 3-chloro-	1*	4	P027	C	1000 (454)

TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES—Continued

[Note: All Comments/Notes Are Located at the End of This Table]

Hazardous substance	CASRN	Regulatory synonyms	Statutory RQ	Statutory Code†	Statutory RCRA waste Number	Final RQ Category	Final RQ Pounds (Kg)
Chlorosulfonic acid	7790945		1000	1		C	1000 (454)
4-Chloro-o-toluidine, hydrochloride	3165933	Benzenamine, 4-chloro-2-methyl-, hydrochloride	1*	4	U049	B	100 (45.4)
Chlorpyrifos	2921882		1	1		X	1 (0.454)
Chromic acetate	1066304		1000	1		C	1000 (454)
Chromic acid	11115745		1000	1		A	10 (4.54)
	7738945						
Chromic acid H2CrO4, calcium salt	13765190	Calcium chromate	1000	1,4	U032	A	10 (4.54)
Chromic sulfate	10101538		1000	1		C	1000 (454)
Chromium ††	7440473		1*	2		D	5000 (2270)
CHROMIUM AND COMPOUNDS	N.A.		1*	2			**
Chromous chloride	10049055		1000	1		C	1000 (454)
Chrysene	218019	1,2-Benzphenanthrene	1*	2,4	U050	B	100 (45.4)
Cobaltous bromide	7789437		1000	1		C	1000 (454)
Cobaltous formate	544183		1000	1		C	1000 (454)
Cobaltous sulfamate	14017415		1000	1		C	1000 (454)
Coke Oven Emissions	N.A.		1*	3		X	1 (0.454)
Copper cyanide CuCN	544923	Copper cyanide	1*	4	P029	A	10 (4.54)
Copper ††	7440508		1*	2		D	5000 (2270)
COPPER AND COMPOUNDS	N.A.		1*	2			**
Copper cyanide	544923	Copper cyanide CuCN	1*	4	P029	A	10 (4.54)
Coumaphos	56724		10	1		A	10 (4.54)
Creosote	8001589		1*	4	U051	X	1 (0.454)
Cresol(s)	1319773	Cresylic acid	1000	1,4	U052	C	1000 (454)
		Phenol, methyl-					
m-Cresol	108394	m-Cresylic acid					
o-Cresol	95487	o-Cresylic acid					
p-Cresol	106445	p-Cresylic acid					
Cresylic acid	1319773	Cresol(s)	1000	1,4	U052	C	1000 (454)
		Phenol, methyl-					
m-Cresol	108394	m-Cresylic acid					
o-Cresol	95487	o-Cresylic acid					
p-Cresol	106445	p-Cresylic acid					
Crotonaldehyde	123739	2-Butenal	100	1,4	U053	B	100 (45.4)
	4170303						
Cumene	98828	Benzene, 1-methylethyl-	1*	4	U055	D	5000 (2270)
Cupric acetate	142712		100	1		B	100 (45.4)
Cupric acetoarsenite	12002038		100	1		X	1 (0.454)
Cupric chloride	7447394		10	1		A	10 (4.54)
Cupric nitrate	3251238		100	1		B	100 (45.4)
Cupric oxalate	5893663		100	1		B	100 (45.4)
Cupric sulfate	7758987		10	1		A	10 (4.54)

Hazardous substance	CASRN	Regulatory synonyms	Statutory RQ	Statutory Code†	Statutory RCRA waste Number	Final RQ Category	Final RQ Pounds (Kg)
Cupric sulfate, ammoniated	10380297		100	1		B	100 (45.4)
Cupric tartrate	815827		100	1		B	100 (45.4)
CYANIDES	N.A.		1*	2			**
Cyanides (soluble salts and complexes) not otherwise specified	57125		1*	4	P030	A	10 (4.54)
Cyanogen	460195	Ethanedinitrile	1*	4	P031	B	100 (45.4)
Cyanogen bromide	506683	Cyanogen bromide (CN)Br	1*	4	U246	C	1000 (454)
Cyanogen bromide (CN)Br	506683	Cyanogen bromide	1*	4	U246	C	1000 (454)
Cyanogen chloride	506774	Cyanogen chloride (CN)Cl	10	1,4	P033	A	10 (4.54)
Cyanogen chloride (CN)Cl	506774	Cyanogen chloride	10	1,4	P033	A	10 (4.54)
2,5-Cyclohexadiene-1,4-dione	106514	p-Benzoquinone	1*	4	U197	A	10 (4.54)
Cyclohexane	110827	Benzene, hexahydro-	1000	1,4	U056	C	1000 (454)
Cyclohexane, 1,2,3,4,5,6-hexachloro-, (1alpha,2alpha,3beta,4alpha,5alpha, 6beta)-	58899	gamma—BHC	1	1,2,4	U129	X	1 (0.454)
		Hexachlorocyclohexane (gamma isomer)Lindane					
		Lindane					
Cyclohexanone	108941		1*	4	U057	D	5000 (2270)
2-Cyclohexyl-4,6-dinitrophenol	131895	Phenol, 2-cyclohexyl-4,6-dinitro-	1*	4	P034	B	100 (45.4)
1,3-Cyclopentadiene, 1,2,3,4,5,5-hexachloro-	77474	Hexachlorocyclopentadiene	1	1,2,4	U130	A	10 (4.54)
Cyclophosphamide	50180	2H-1,3,2-Oxazaphosphorin-2-amine, N,N-bis(2-chloroethyl)tetrahydro-,2-oxide	1*	4	U058	A	10 (4.54)
2,4-D Acid	94757	Acetic acid (2,4-dichlorophenoxy)-2,4-D, salts and esters.	100	1,4	U240	B	100 (45.4)
2,4-D Ester	94111		100	1		B	100 (45.4)
	94791						
	94804						
	1320189						
	1928387						
	1928616						
	1929733						
	2971382						
	25168267						
	53467111						
2,4-D, salts and esters	94757	Acetic acid (2,4-dichlorophenoxy)-2,4-D Acid	100	1,4	U240	B	100 (45.4)
Daunomycin	20830813	5,12-Naphthacenedione, 8-acetyl-10-[(3-amino-2,3,6- trideoxy-alpha-L-lyxo-hexo-pyranosyl)oxy]-7,8,9,10- tetrahydro-6,8,11-trihydroxy-1-methoxy-, (8S-cis)-	1*	4	U059	A	10 (4.54)
DDD	72548	Benzene, 1,1'-(2,2-dichloroethylidene)bis[4-chloro-	1	1,2,4	U060	X	1 (0.454)
		TDE					
		4,4' DDD					
4,4' DDD	72548	Benzene, 1,1'-(2,2-dichloroethylidene)bis[4-chloro-	1	1,2,4	U060	X	1 (0.454)
		DDD					
		TDE					
DDE	72559	4,4' DDE	1*	2		X	1 (0.454)
4,4' DDE	72559	DDE	1*	2		X	1 (0.454)
DDT	50293	Benzene, 1,1'-(2,2,2-trichloroethylidene)bis[4-chloro- 4,4'DDT	1	1,2,4	U061	X	1 (0.454)
4,4'DDT	50293	Benzene, 1,1'-(2,2,2-trichloroethylidene)bis[4-chloro-	1	1,2,4	U061	X	1 (0.454)
		DDT					

TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES—Continued

[Note: All Comments/Notes Are Located at the End of This Table]

Hazardous substance	CASRN	Regulatory synonyms	Statutory RQ	Statutory Code†	Statutory RCRA waste Number	Final RQ Category	Final RQ Pounds (Kg)
DDT AND METABOLITES	N.A.		1*	2			**
Diallate	2303164	Carbamothioic acid, bis(1-methylethyl)-, S-(2,3-dichloro-2-propenyl) ester.	1*	4	U062	B	100 (45.4)
Diazinon	333415		1	1		X	1 (0.454)
Dibenz[a,h]anthracene	53703	Dibenzo[a,h]anthracene 1,2:5,6-Dibenzanthracene	1*	2,4	U063	X	1 (0.454)
1,2:5,6-Dibenzanthracene	53703	Dibenz[a,h]anthracene Dibenzo[a,h]anthracene	1*	2,4	U063	X	1 (0.454)
Dibenzo[a,h]anthracene	53703	Dibenz[a,h]anthracene 1,2:5,6-Dibenzanthracene	1*	2,4	U063	X	1 (0.454)
Dibenz[a,i]pyrene	189559	Benzo[rst]pentaphene	1*	4	U064	A	10 (4.54)
1,2-Dibromo-3-chloropropane	96128	Propane, 1,2-dibromo-3-chloro-	1*	4	U066	X	1 (0.454)
Dibutyl phthalate	84742	Di-n-butyl phthalate n-Butyl phthalate 1,2-Benzenedicarboxylic acid, dibutyl ester	100	1,2,4	U069	A	10 (4.54)
Di-n-butyl phthalate	84742	Dibutyl phthalate n-Butyl phthalate 1,2-Benzenedicarboxylic acid, dibutyl ester	100	1,2,4	U069	A	10 (4.54)
Dicamba	1918009		1000	1		C	1000 (454)
Dichlobenil	1194656		1000	1		B	100 (45.4)
Dichlone	117806		1	1		X	1 (0.454)
Dichlorobenzene	25321226		100	1		B	100 (45.4)
1,2-Dichlorobenzene	95501	Benzene, 1,2-dichloro- o-Dichlorobenzene	100	1,2,4	U070	B	100 (45.4)
1,3-Dichlorobenzene	541731	Benzene, 1,3-dichloro m-Dichlorobenzene	1*	2,4	U071	B	100 (45.4)
1,4-Dichlorobenzene	106467	Benzene, 1,4-dichloro p-Dichlorobenzene	100	1,2,4	U072	B	100 (45.4)
m-Dichlorobenzene	541731	Benzene, 1,3-dichloro 1,3-Dichlorobenzene	1*	2,4	U071	B	100 (45.4)
o-Dichlorobenzene	95501	Benzene, 1,2-dichloro 1,2-Dichlorobenzene	100	1,2,4	U070	B	100 (45.4)
p-Dichlorobenzene	106467	Benzene, 1,4-dichloro 1,4-Dichlorobenzene	100	1,2,4	U072	B	100 (45.4)
DICHLOROBENZIDINE	N.A.		1*	2			**
3,3'-Dichlorobenzidine	91941	[1,1'-Biphenyl]-4,4'diamine,3,3'dichloro-	1*	2,4	U073	X	1 (0.454)
Dichlorobromomethane	75274		1*	2		D	5000 (2270)
1,4-Dichloro-2-butene	764410	2-Butene, 1,4-dichloro-	1*	4	U074	X	1 (0.454)
Dichlorodifluoromethane	75718	Methane, dichlorodifluoro-	1*	4	U075	D	5000 (2270)
1,1-Dichloroethane	75343	Ethane, 1,1-dichloro- Ethylidene dichloride	1*	2,4	U076	C	1000 (454)
1,2-Dichloroethane	107062	Ethane, 1,2-dichloro- Ethylene dichloride	5000	1,2,4	U077	B	100 (45.4)
1,1-Dichloroethylene	75354	Ethene, 1,1-dichloro- Vinylidene chloride	5000	1,2,4	U078	B	100 (45.4)
1,2-Dichloroethylene	156605	Ethene, 1,2-dichloro- (E)	1*	2,4	U079	C	1000 (454)

Hazardous substance	CASRN	Regulatory synonyms	Statutory RQ	Statutory Code†	Statutory RCRA waste Number	Final RQ Category	Final RQ Pounds (Kg)
Dichloroethyl ether	111444	Bis (2-chloroethyl) ether Ethane, 1,1'-oxybis[2-chloro-	1*	2,4	U025	A	10 (4.54)
Dichloroisopropyl ether	108601	Propane, 2,2'-oxybis[2-chloro-	1*	2,4	U027	C	1000 (454)
Dichloromethoxy ethane	111911	Bis(2-chloroethoxy) methane Ethane, 1,1'-[methylenebis(oxy)]bis[2-chloro-	1*	2,4	U024	C	1000 (454)
Dichloromethyl ether	542881	Methane, oxybis(chloro-	1*	4	P016	A	10 (4.54)
2,4-Dichlorophenol	120832	Phenol, 2,4-dichloro-	1*	2,4	U081	B	100 (45.4)
2,6-Dichlorophenol	87650	Phenol, 2,6-dichloro-	1*	4	U082	B	100 (45.4)
Dichlorophenylarsine	696286	Arsonous dichloride, phenyl-	1*	4	P036	X	1 (0.454)
Dichloropropane	26638197		5000	1		C	1000 (454)
1,1-Dichloropropane	78999						
1,3-Dichloropropane	142289						
1,2-Dichloropropane	78875	Propane, 1,2-dichloro- Propylene dichloride	5000	1,2,4	U083	C	1000 (454)
Dichloropropane—Dichloropropene (mixture)	8003198		5000	1		B	100 (45.4)
Dichloropropene	26952238		5000	1		B	100 (45.4)
2,3-Dichloropropene	78886						
1,3-Dichloropropene	542756	1-Propene, 1,3-dichloro-	5000	1,2,4	U084	B	100 (45.4)
2,2-Dichloropropionic acid	75990		5000	1		D	5000 (2270)
Dichlorvos	62737		10	1		A	10 (4.54)
Dicofol	115322		5000	1		A	10 (4.54)
Dieldrin	60571	2,7:3,6-Dimethanonaphth[2,3-b]oxirene, 3,4,5,6,9,9-hexachloro-1a,2,2a,3,6,6a,7,7a-octahydro-, (1aalpha,2beta,2aalpha,3beta,6beta, 6aalpha,7beta, 7aalpha)-.	1	1,2,4	P037	X	1 (0.454)
1,2:3,4-Diepoxybutane	1464535	2,2'-Bioxirane	1*	4	U085	A	10 (4.54)
Diethylamine	109897		1000	1		B	100 (454.4)
Diethylarsine	692422	Arsine, diethyl-	1*	4	P038	X	1 (0.454)
1,4-Diethylenedioxide	123911	1,4-Dioxane	1*	4	U108	B	100 (45.4)
Diethylhexyl phthalate	117817	Bis (2-ethylhexyl)phthalate 1,2-Benzenedicarboxylic acid, [bis(2-ethylhexyl)] ester	1*	2,4	U028	B	100 (45.4)
N,N'-Diethylhydrazine	1615801	Hydrazine, 1,2-diethyl-	1*	4	U086	A	10 (4.54)
O,O-Diethyl S-methyl dithiophosphate	3288582	Phosphorodithioic acid, O,O-diethyl S-methyl ester	1*	4	U087	D	5000 (2270)
Diethyl-p-nitrophenyl phosphate	311455	Phosphoric acid, diethyl 4-nitrophenyl ester	1*	4	P041	B	100 (45.4)
Diethyl phthalate	84662	1,2-Benzenedicarboxylic acid, diethyl ester	1*	2,4	U088	C	1000 (454)
O,O-Diethyl O-pyrazinyl phosphorothioate	297972	Phosphorothioic acid, O,O-diethyl O-pyrazinyl ester	1*	4	P040	B	100 (45.4)
Diethylstilbestrol	56531	Phenol, 4,4'-(1,2-diethyl-1,2-ethenediyl)bis-, (E)	1*	4	U089	X	1 (0.454)
Dihydrosafrole	94586	1,3-Benzodioxole, 5-propyl-	1*	4	U090	A	10 (4.54)
Diisopropylfluorophosphate	55914	Phosphorofluoridic acid, bis(1-methylethyl) ester	1*	4	P043	B	100 (45.4)
1,4,5,8-Dimethanonaphthalene, 1,2,3,4,10,10-10-hexachloro-1,4,4a,5,8,8a-hexahydro-, (1alpha,4alpha,4abeta,5alpha,8alpha, 8abeta)-	309002	Aldrin	1	1,2,4	P004	X	1 (0.454)
1,4,5,8-Dimethanonaphthalene, 1,2,3,4,10,10-hexachloro-1,4,4a,5,8,8a-hexahydro, (1alpha,4alpha,4abeta,5abeta,8beta, 8abeta)-	465736	Isodrin	1*	4	P060	X	1 (0.454)
2,7:3,6-Dimethanonaphth[2,3-b]oxirene, 3,4,5,6,9,9-hexachloro-1a,2,2a,3,6,6a,7,7a-octahydro-, (1aalpha,2beta,2aalpha,3beta,6beta,	60571	Dieldrin	1	1,2,4	P037	X	1 (0.454)

TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES—Continued

[Note: All Comments/Notes Are Located at the End of This Table]

Hazardous substance	CASRN	Regulatory synonyms	Statutory RQ	Statutory Code†	Statutory RCRA waste Number	Final RQ Category	Final RQ Pounds (Kg)
6aalpha,7beta,7aalpha)-2,7:3,6-Dimethanonaphth[2,3-b]oxirene, 3,4,5,6,9,9-hexachloro-1a,2,2a,3,6,6a,7,7a-octa-hydro-, (1aalpha,2beta,2abeta,3alpha,6alpha,	72208	Endrin Endrin, & metabolites	1	1,2,4	P051	X	1 (0.454)
6abeta,7beta,7aalpha)-Dimethoate	60515	Phosphorodithioic acid, O,O-dimethyl S-[2(methylamino)-2-oxoethyl] ester.	1*	4	P044	A	10 (4.54)
3,3'-Dimethoxybenzidine	119904	[1,1'-Biphenyl]-4,4'diamine,3,3'dimethoxy-	1*	4	U091	B	100 (45.4)
Dimethylamine	124403	Methanamine, N-methyl-	1000	1,4	U092	C	1000 (454)
p-Dimethylaminoazobenzene	60117	Benzenamine, N,N-dimethyl-4-(phenylazo-)	1*	4	U093	A	10 (4.54)
7,12-Dimethylbenz[a]anthracene	57976	Benz[a]anthracene, 7,12-dimethyl-	1*	4	U094	X	1 (0.454)
3,3'-Dimethylbenzidine	119937	[1,1'Biphenyl]-4,4'-diamine,3,3'-dimethyl-	1*	4	U095	A	10 (4.54)
alpha,alpha-Dimethylbenzylhydroperoxide	80159	Hydroperoxide, 1-methyl-1-phenylethyl-	1*	4	U096	A	10 (4.54)
Dimethylcarbamoyl chloride	79447	Carbamic chloride, dimethyl-	1*	4	U097	X	1 (0.454)
1,1-Dimethylhydrazine	57147	Hydrazine, 1,1-dimethyl-	1*	4	U098	A	10 (4.54)
1,2-Dimethylhydrazine	540738	Hydrazine, 1,2-dimethyl-	1*	4	U099	X	1 (0.454)
alpha,alpha-Dimethylphenethylamine	122098	Benzeneethanamine, alpha,alpha-dimethyl-	1*	4	P046	D	5000 (2270)
2,4-Dimethylphenol	105679	Phenol, 2,4-dimethyl-	1*	2,4	U101	B	100 (45.4)
Dimethyl phthalate	131113	1,2-Benzenedicarboxylic acid, dimethyl ester	1*	2,4	U102	D	5000 (2270)
Dimethyl sulfate	77781	Sulfuric acid, dimethyl ester	1*	4	U103	B	100 (45.4)
Dinitrobenzene (mixed)	25154545		1000	1		B	100 (45.4)
m-Dinitrobenzene	99650						—
o-Dinitrobenzene	528290						—
p-Dinitrobenzene	100254						—
4,6-Dinitro-o-cresol and salts	534521	Phenol, 2-methyl-4,6-dinitro-	1*	2,4	P047	A	10 (4.54)
Dinitrophenol	25550587		1000	1		A	10 (4.54)
2,5-Dinitrophenol	329715		—				—
2,6-Dinitrophenol	573568		—				—
2,4-Dinitrophenol	51285	Phenol, 2,4-dinitro-	1000	1,2,4	P048	A	10 (4.54)
Dinitrotoluene	25321146		1000	1,2		A	10 (4.54)
3,4-Dinitrotoluene	610399						
2,4-Dinitrotoluene	121142	Benzene, 1-methyl-2,4-dinitro-	1000	1,2,4	U105	A	10 (4.54)
2,6-Dinitrotoluene	606202	Benzene, 2-methyl-1,3-dinitro-	1000	1,2,4	U106	B	100 (45.4)
Dinoseb	88857	Phenol, 2-(1-methylpropyl)-4,6-dinitro	1*	4	P020	C	1000 (454)
Di-n-octyl phthalate	117840	1,2-Benzenedicarboxylic acid, dioctyl ester	1*	2,4	U107	D	5000 (2270)
1,4-Dioxane	123911	1,4-Diethylenedioxide	1*	4	U108	B	100 (45.4)
DIPHENYLHYDRAZINE	N.A.		1*	2			**
1,2-Diphenylhydrazine	122667	Hydrazine, 1,2-diphenyl-	1*	2,4	U109	A	10 (4.54)
Diphosphoramide, octamethyl-	152169	Octamethylpyrophosphoramide	1*	4	P085	B	100 (45.4)
Diphosphoric acid, tetraethyl ester	107493	Tetraethyl pyrophosphate	100	1,4	P111	A	10 (4.54)
Dipropylamine	142847	1-Propanamine, N-propyl-	1*	4	U110	D	5000 (2270)
Di-n-propylnitrosamine	621647	1-Propanamine, N-nitroso-N-propyl-	1*	2,4	U111	A	10 (4.54)

Hazardous substance	CASRN	Regulatory synonyms	Statutory RQ	Statutory Code†	Statutory RCRA waste Number	Final RQ Category	Final RQ Pounds (Kg)
Diquat	85007 2764729		1000	1		C	1000 (454)
Disulfoton	298044	Phosphorodithioic acid, o,o-diethyl S-[2-(ethylthio)ethyl]ester.	1	1,4	P039	X	1 (0.454)
Dithiobiuret	541537	Thioimidodicarbonic diamide [(H2N)C(S)]2NH	1*	4	P049	B	100 (45.4)
Diuron	330541		100	1		B	100 (45.4)
Dodecylbenzenesulfonic acid	27176870		1000	1		C	1000 (454)
Endosulfan	115297	6,9-Methano-2,4,3-benzodioxathiepin, 6,7,8,9,10,10-hexachloro-1,5,5a,6,9,9a-hexahydro-, 3-oxide.	1	1,2,4	P050	X	1 (0.454)
alpha - Endosulfan	959988		1*	2		X	1 (0.454)
beta - Endosulfan	33213659		1*	2		X	1 (0.454)
ENDOSULFAN AND METABOLITES	N.A.		1*	2			**
Endosulfan sulfate	1031078		1*	2		X	1 (0.454)
Endothall	145733	7-Oxabicyclo[2.2.1]heptane-2,3-dicarboxylic acid	1*	4	P088	C	1000 (454)
Endrin	72208	Endrin, & metabolites 2,7:3,6-Dimethanonaphth[2,3-b]oxirene, 3,4,5,6,9,9 -hexachloro-1a,2,2a,3, 6,6a,7,7a-octa-hydro-, (1aalpha, 2beta,2abeta,3alpha,6alpha, 6abeta,7beta, 7aalpha)-	1	1,2,4	P051	X	1 (0.454)
Endrin aldehyde	7421934		1*	2		X	1 (0.454)
ENDRIN AND METABOLITES	N.A.		1*	2			**
Endrin, & metabolites	72208	Endrin 2,7:3,6-Dimethanonaphth[2,3-b]oxirene, 3,4,5,6,9,9-hexachloro-1a,2,2a,3, 6,6a,7,7a-octa-hydro-, (1aalpha, 2beta,2abeta,3alpha,6alpha, 6abeta,7beta, 7aalpha)-	1	1,2,4	P051	X	1 (0.454)
Epichlorohydrin	106898	Oxirane, (chloromethyl)-	1000	1,4	U041	B	100 (45.4)
Epinephrine	51434	1,2-Benzenediol,4-[1-hydroxy-2-(methylamino)ethyl]-.	1*	4	P042	C	1000 (454)
Ethanal	75070	Acetaldehyde	1000	1,4	U001	C	1000 (454)
Ethanamine, N-ethyl-N-nitroso-	55185	N-Nitrosodiethylamine	1*	4	U174	X	1 (0.454)
1,2-Ethanediamine, N,N-dimethyl-N'-2-pyridinyl-N'-(2-thienylmethyl)-	91805	Methapyrilene	1*	4	U155	D	5000 (2270)
Ethane, 1,2-dibromo-	106934	Ethylene dibromide	1000	1,4	U067	X	1 (0.454)
Ethane, 1,1-dichloro-	75343	Ethylidene dichloride 1,1-Dichloroethane	1*	2,4	U076	C	1000 (454)
Ethane, 1,2-dichloro-	107062	Ethylene dichloride 1,2-Dichloroethane	5000	1,2,4	U077	B	100 (45.4)
Ethanedinitrile	460195	Cyanogen	1*	4	P031	B	100 (45.4)
Ethane, hexachloro-	67721	Hexachloroethane	1*	2,4	U131	B	100 (45.4)
Ethane, 1,1'-[methylenebis(oxy)]bis(2-chloro-	111911	Bis(2-chloroethoxy) methane Dichloromethoxy ethane	1*	2,4	U024	C	1000 (454)
Ethane, 1,1'-oxybis-	60297	Ethyl ether	1*	4	U117	B	100 (45.4)
Ethane, 1,1'-oxybis[2-chloro-	111444	Bis (2-chloroethyl) ether Dichloroethyl ether	1*	2,4	U025	A	10 (4.54)
Ethane, pentachloro-	76017	Pentachloroethane	1*	4	U184	A	10 (4.54)

TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES—Continued

[Note: All Comments/Notes Are Located at the End of This Table]

Hazardous substance	CASRN	Regulatory synonyms	Statutory			Final RQ	
			RQ	Code†	RCRA waste Number	Category	Pounds (Kg)
Ethane, 1,1,1,2-tetrachloro-	630206	1,1,1,2-Tetrachloroethane	1*	4	U208	B	100 (45.4)
Ethane, 1,1,2,2-tetrachloro-	79345	1,1,2,2-Tetrachloroethane	1*	2,4	U209	B	100 (45.4)
Ethanethioamide	62555	Thioacetamide	1*	4	U218	A	10 (4.54)
Ethane, 1,1,1-trichloro-	71556	Methyl chloroform	1*	2,4	U226	C	1000 (454)
		1,1,1-Trichloroethane					
Ethane, 1,1,2-trichloro-	79005	1,1,2-Trichloroethane	1*	2,4	U227	B	100 (45.4)
Ethanimidothioic acid, N-[[(methylamino)carbonyl]oxy]-, methyl ester	16752775	Methomyl	1*	4	P066	B	100 (45.4)
Ethanol, 2-ethoxy-	110805	Ethylene glycol monoethyl ether	1*	4	U359	C	1000 (454)
Ethanol, 2,2'-(nitrosoimino)bis-	1116547	N-Nitrosodiethanolamine	1*	4	U173	X	1 (0.454)
Ethanone, 1-phenyl-	98862	Acetophenone	1*	4	U004	D	5000 (2270)
Ethene, chloro-	75014	Vinyl chloride	1*	2,3,4	U043	X	1 (0.454)
Ethene, 2-chloroethoxy-	110758	2-Chloroethyl vinyl ether	1*	2,4	U042	C	1000 (454)
Ethene, 1,1-dichloro-	75354	Vinylidene chloride	5000	1,2,4	U078	B	100 (45.4)
		1,1-Dichloroethylene					
Ethene, 1,2-dichloro- (E)	156605	1,2-Dichloroethylene	1*	2,4	U079	C	1000 (454)
Ethene, tetrachloro-	127184	Perchloroethylene	1*	2,4	U210	B	100 (45.4)
		Tetrachloroethene					
		Tetrachloroethylene					
Ethene, trichloro-	79016	Trichloroethene	1000	1,2,4	U228	B	100 (45.4)
		Trichloroethylene					
Ethion	563122		10	1		A	10 (4.54)
Ethyl acetate	141786	Acetic acid, ethyl ester	1*	4	U112	D	5000 (2270)
Ethyl acrylate	140885	2-Propenoic acid, ethyl ester	1*	4	U113	C	1000 (454)
Ethylbenzene	100414		1000	1,2		C	1000 (454)
Ethyl carbamate (urethane)	51796	Carbamic acid, ethyl ester	1*	4	U238	B	100 (45.4)
Ethyl cyanide	107120	Propanenitrile	1*	4	P101	A	10 (4.54)
Ethylenebisdithiocarbamic acid, salts & esters	111546	Carbamodithioic acid, 1,2-ethanediylbis-, salts & esters.	1*	4	U114	D	5000 (2270)
Ethylenediamine	107153		1000	1		D	5000 (2270)
Ethylenediamine-tetraacetic acid (EDTA)	60004		5000	1		D	5000 (2270)
Ethylene dibromide	106934	Ethane, 1,2-dibromo-	1000	1,4	U067	X	1 (0.454)
Ethylene dichloride	107062	Ethane, 1,2-dichloro-	5000	1,2,4	U077	B	100 (45.4)
		1,2-Dichloroethane					
Ethylene glycol monoethyl ether	110805	Ethanol, 2-ethoxy-	1*	4	U359	C	1000 (454)
Ethylene oxide	75218	Oxirane	1*	4	U115	A	10 (4.54)
Ethylenethiourea	96457	2-Imidazolidinethione	1*	4	U116	A	10 (4.54)
Ethylenimine	151564	Aziridine	1*	4	P054	X	1 (0.454)
Ethyl ether	60297	Ethane, 1,1'-oxybis-	1*	4	U117	B	100 (45.4)
Ethylidene dichloride	75343	Ethane, 1,1-dichloro-	1*	2,4	U076	C	1000 (454)
		1,1-Dichloroethane					
Ethyl methacrylate	97632	2-Propenoic acid, 2-methyl-, ethyl ester	1*	4	U118	C	1000 (454)
Ethyl methanesulfonate	62500	Methanesulfonic acid, ethyl ester	1*	4	U119	X	1 (0.454)
Famphur	52857	Phosphorothioic acid, O,[4-[(dimethylamino) sulfonyl] phenyl] O,O-dimethyl ester.	1*	4	P097	C	1000 (454)
Ferric ammonium citrate	1185575		1000	1		C	1000 (454)
Ferric ammonium oxalate	2944674		1000	1		C	1000 (454)
	55488874						
Ferric chloride	7705080		1000	1		C	1000 (454)
Ferric fluoride	7783508		100	1		B	100 (45.4)
Ferric nitrate	10421484		1000	1		C	1000 (454)
Ferric sulfate	10028225		1000	1		C	1000 (454)
Ferrous ammonium sulfate	10045893		1000	1		C	1000 (454)
Ferrous chloride	7758943		100	1		B	100 (45.4)
Ferrous sulfate	7720787		1000	1		C	1000 (454)
	7782630						
Fluoranthene	206440	Benzo[j,k]fluorene	1*	2,4	U120	B	100 (45.4)
Fluorene	86737		1*	2		D	5000 (2270)
Fluorine	7782414		1*	4	P056	A	10 (4.54)
Fluoroacetamide	640197	Acetamide, 2-fluoro-	1*	4	P057	B	100 (45.4)
Fluoroacetic acid, sodium salt	62748	Acetic acid, fluoro-, sodium salt	1*	4	P058	A	10 (4.54)
Formaldehyde	50000		1000	1,4	U122	B	100 (45.4)
Formic acid	64186		5000	1,4	U123	D	5000 (2270)
Fulminic acid, mercury(2+)salt	628864	Mercury fulminate	1*	4	P065	A	10 (4.54)
Fumaric acid	110178		5000	1		D	5000 (2270)
Furan	110009	Furfuran	1*	4	U124	B	100 (45.4)
Furan, tetrahydro-	109999	Tetrahydrofuran	1*	4	U213	C	1000 (454)
2-Furancarboxaldehyde	98011	Furfural	1000	1,4	U125	D	5000 (2270)
2,5-Furandione	108316	Maleic anhydride	5000	1,4	U147	D	5000 (2270)
Furfural	98011	2-Furancarboxaldehyde	1000	1,4	U125	D	5000 (2270)
Furfuran	110009	Furan	1*	4	U124	B	100 (45.4)
Glucopyranose, 2-deoxy-2-(3-methyl-3-nitrosoureido)-	18883664	D-Glucose, 2-deoxy-2-[[(methylnitrosoamino)-carbonyl]amino] Streptozotocin.	1*	4	U206	X	1 (0.454)
D-Glucose, 2-deoxy-2-[[(methylnitrosoamino)-carbonyl]amino]-.	18883664	Glucopyranose, 2-deoxy-2-(3-methyl-3-nitrosoureido)-.	1*	4	U206	X	1 (0.454)
		Streptozotocin					
Glycidylaldehyde	765344	Oxiranecarboxyaldehyde	1*	4	U126	A	10 (4.54)
Guanidine, N-methyl-N'-nitro-N-nitroso-	70257	MNNG	1*	4	U163	A	10 (4.54)
Guthion	86500		1	1		X	1 (0.454)
HALOETHERS	N.A.		1*	2			**
HALOMETHANES	N.A.		1*	2			**
Heptachlor	76448	4,7-Methano-1H-indene, 1,4,5,6,7,8,8-heptachloro-3a,4,7,7a-tetrahydro-.	1	1,2,4	P059	X	1 (0.454)
HEPTACHLOR AND METABOLITES	N.A.		1*	2			**
Heptachlor epoxide	1024573		1*	2		X	1 (0.454)
Hexachlorobenzene	118741	Benzene, hexachloro-	1*	2,4	U127	A	10 (4.54)
Hexachlorobutadiene	87683	1,3-Butadiene, 1,1,2,3,4,4-hexachloro-	1*	2,4	U128	X	1 (0.454)
HEXACHLOROCYCLOHEXANE (all isomers)	608731		1*	2			**
Hexachlorocyclohexane (gamma isomer)	58899	Cyclohexane, 1,2,3,4,5,6-hexachloro-, (1alpha,2alpha,3beta,4alpha,5alpha, 6beta)-gamma-BHC	1	1,2,4	U129	X	1 (0.454)
		Lindane					

TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES—Continued

[Note: All Comments/Notes Are Located at the End of This Table]

Hazardous substance	CASRN	Regulatory synonyms	Statutory RQ	Statutory Code†	Statutory RCRA waste Number	Final RQ Category	Final RQ Pounds (Kg)
Hexachlorocyclopentadiene	77474	1,3-Cyclopentadiene,1,2,3,4,5,5-hexachloro-	1	1,2,4	U130	A	10 (4.54)
Hexachloroethane	67721	Ethane, hexachloro-	1*	2,4	U131	B	100 (45.4)
Hexachlorophene	70304	Phenol, 2,2'-methylenebis[3,4,6-trichloro-	1*	4	U132	B	100 (45.4)
Hexachloropropene	1888717	1-Propene, 1,1,2,3,3,3-hexachloro-	1*	4	U243	C	1000 (454)
Hexaethyl tetraphosphate	757584	Tetraphosphoric acid, hexaethyl ester	1*	4	P062	B	100 (45.4)
Hydrazine	302012		1*	4	U133	X	1 (0.454)
Hydrazine, 1,2-diethyl-	1615801	N,N'-Diethylhydrazine	1*	4	U086	A	10 (4.54)
Hydrazine, 1,1-dimethyl-	57147	1,1-Dimethylhydrazine	1*	4	U098	A	10 (4.54)
Hydrazine, 1,2-dimethyl-	540738	1,2-Dimethylhydrazine	1*	4	U099	X	1 (0.454)
Hydrazine, 1,2-diphenyl-	122667	1,2-Diphenylhydrazine	1*	2,4	U109	A	10 (4.54)
Hydrazine, methyl-	60344	Methyl hydrazine	1*	4	P068	A	10 (4.54)
Hydrazinecarbothioamide	79196	Thiosemicarbazide	1*	4	P116	B	100 (45.4)
Hydrochloric acid	7647010	Hydrogen chloride	5000	1		D	5000 (2270)
Hydrocyanic acid	74908	Hydrogen cyanide	10	1,4	P063	A	10 (4.54)
Hydrofluoric acid	7664393	Hydrogen fluoride	5000	1,4	U134	B	100 (45.4)
Hydrogen chloride	7647010	Hydrochloric acid	5000	1		D	5000 (2270)
Hydrogen cyanide	74908	Hydrocyanic acid	10	1,4	P063	A	10 (4.54)
Hydrogen fluoride	7664393	Hydrofluoric acid	5000	1,4	U134	B	100 (45.4)
Hydrogen sulfide	7783064	Hydrogen sulfide H2S	100	1,4	U135	B	100 (45.4)
Hydrogen sulfide H2S	7783064	Hydrogen sulfide	100	1,4	U135	B	100 (45.4)
Hydroperoxide, 1-methyl-1-phenylethyl-	80159	alpha,alpha-Dimethylbenzylhydroperoxide	1*	4	U096	A	10 (4.54)
2-Imidazolidinethione	96457	Ethylenethiourea	1*	4	U116	A	10 (4.54)
Indeno(1,2,3-cd)pyrene	193395	1,10-(1,2-Phenylene)pyrene	1*	2,4	U137	B	100 (45.4)
1,3-Isobenzofurandione	85449	Phthalic anhydride	1*	4	U190	D	5000 (2270)
Isobutyl alcohol	78831	1-Propanol, 2-methyl-	1*	4	U140	D	5000 (2270)
Isodrin	465736	1,4,5,8-Dimethanonaphthalene, 1,2,3,4,10,10-hexachloro-1,4,4a,5,8,8a-hexahydro-, (1alpha,4alpha,4abeta,5beta, 8beta,8abeta)-.	1*	4	P060	X	1 (0.454)
Isophorone	78591		1*	2		D	5000 (2270)
Isoprene	78795		1000	1		B	100 (45.4)
Isopropanolamine dodecylbenzenesulfonate	42504461		1000	1		C	1000 (454)
Isosafrole	120581	1,3-Benzodioxole, 5-(1-propenyl)-	1*	4	U141	B	100 (45.4)
3(2H)-Isoxazolone, 5-(aminomethyl)-	2763964	Muscimol 5-(Aminomethyl)-3-isoxazolol	1*	4	P007	C	1000 (454)
Kepone	143500	1,3,4-Metheno-2H-cyclobuta[cd]pentalen-2-one, 1,1a,3,3a,4,5,5,5a,5b,6-decachlorooctahydro-.	1	1,4	U142	X	1 (0.454)
Lasiocarpine	303344	2-Butenoic acid, 2-methyl-, 7[[2,3-dihydroxy-2-(1-methoxyethyl)-3-methyl-1-oxobutoxy]methyl]-2,3,5,7a-tetrahydro-1H-pyrrolizin-1-yl ester, [1S-[1alpha(Z), 7(2S*,3R*),7aalpha]]-.	1*	4	U143	A	10 (4.54)
Lead††	7439921		1*	2		A	10 (4.54)
Lead acetate	301042	Acetic acid, lead(2+) salt	5000	1,4	U144	A	10 (4.54)
LEAD AND COMPOUNDS	N.A.		1*	2			**
Lead arsenate	7784409 7645252 10102484		5000	1		X	1 (0.454)
Lead, bis(acetato-O)tetrahydroxytri-	1335326	Lead subacetate	1*	4	U146	A	10 (4.54)
Lead chloride	7758954		5000	1		A	10 (4.54)
Lead fluoborate	13814965		5000	1		A	10 (4.54)
Lead fluoride	7783462		1000	1		A	10 (4.54)
Lead iodide	10101630		5000	1		A	10 (4.54)
Lead nitrate	10099748		5000	1		A	10 (4.54)
Lead phosphate	7446277	Phosphoric acid, lead(2+) salt (2:3)	1*	4	U145	A	10 (4.54)
Lead stearate	1072351 7428480 52652592 56189094		5000	1		A	10 (4.54)
Lead subacetate	1335326	Lead, bis(acetato-O)tetrahydroxytri-	1*	4	U146	A	10 (4.54)
Lead sulfate	7446142 15739807		5000	1		A	10 (4.54)
Lead sulfide	1314870		5000	1		A	10 (4.54)
Lead thiocyanate	592870		5000	1		A	10 (4.54)
Lindane	58899	Cyclohexane, 1,2,3,4,5,6-hexachloro-, (1alpha,2alpha,3beta,4alpha,5alpha,6beta)- gamma-BHC. Hexachlorocyclohexane (gamma isomer)	1	1,2,4	U129	X	1 (0.454)
Lithium chromate	14307358		1000	1		A	10 (4.54)
Malathion	121755		10	1		B	100 (45.4)
Maleic acid	110167		5000	1		D	5000 (2270)
Maleic anhydride	108316	2,5-Furandione	5000	1,4	U147	D	5000 (2270)
Maleic hydrazide	123331	3,6-Pyridazinedione, 1,2-dihydro-	1*	4	U148	D	5000 (2270)
Malononitrile	109773	Propanedinitrile	1*	4	U149	C	1000 (454)
Melphalan	148823	L-Phenylalanine, 4-[bis(2-chloroethyl) amino]-	1*	4	U150	X	1 (0.454)
Mercaptodimethur	2032657		100	1		A	10 (4.54)
Mercuric cyanide	592041		1	1		X	1 (0.454)
Mercuric nitrate	10045940		10	1		A	10 (4.54)
Mercuric sulfate	7783359		10	1		A	10 (4.54)
Mercuric thiocyanate	592858		10	1		A	10 (4.54)
Mercurous nitrate	10415755 7782867		10	1		A	10 (4.54)
Mercury	7439976		1*	2,3,4	U151	X	1 (0.454)
MERCURY AND COMPOUNDS	N.A.		1*	2			**
Mercury, (acetato-O)phenyl-	62384	Phenylmercury acetate	1*	4	P092	B	100 (45.4)
Mercury fulminate	628864	Fulminic acid, mercury(2+)salt	1*	4	P065	A	10 (4.54)
Methacrylonitrile	126987	2-Propenenitrile, 2-methyl-	1*	4	U152	C	1000 (454)
Methanamine, N-methyl-	124403	Dimethylamine	1000	1,4	U092	C	1000 (454)
Methanamine, N-methyl-N-nitroso-	62759	N-Nitrosodimethylamine	1*	2,4	P082	A	10 (4.54)
Methane, bromo-	74839	Methyl bromide	1*	2,4	U029	C	1000 (454)
Methane, chloro-	74873	Methyl chloride	1*	2,4	U045	B	100 (45.4)
Methane, chloromethoxy-	107302	Chloromethyl methyl ether	1*	4	U046	A	10 (4.54)
Methane, dibromo-	74953	Methylene bromide	1*	4	U068	C	1000 (454)

TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES—Continued

[Note: All Comments/Notes Are Located at the End of This Table]

Hazardous substance	CASRN	Regulatory synonyms	Statutory RQ	Statutory Code†	Statutory RCRA waste Number	Final RQ Category	Final RQ Pounds (Kg)
Methane, dichloro-	75092	Methylene chloride	1*	2,4	U080	C	1000 (454)
Methane, dichlorodifluoro-	75718	Dichlorodifluoromethane	1*	4	U075	D	5000 (2270)
Methane, iodo-	74884	Methyl iodide	1*	4	U138	B	100 (45.4)
Methane, isocyanato-	624839	Methyl isocyanate	1*	3,4	P064	A	10 (4.54)
Methane, oxybis(chloro-	542881	Dichloromethyl ether	1*	4	P016	A	10 (4.54)
Methanesulfenyl chloride, trichloro-	594423	Trichloromethanesulfenyl chloride	1*	4	P118	B	100 (45.4)
Methanesulfonic acid, ethyl ester	62500	Ethyl methanesulfonate	1*	4	U119	X	1 (0.454)
Methane, tetrachloro-	56235	Carbon tetrachloride	5000	1,2,4	U211	A	10 (4.54)
Methane, tetranitro-	509148	Tetranitromethane	1*	4	P112	A	10 (4.54)
Methane, tribromo-	75252	Bromoform	1*	2,4	U225	B	100 (45.4)
Methane, trichloro-	67663	Chloroform	5000	1,2,4	U044	A	10 (4.54)
Methane, trichlorofluoro-	75694	Trichloromonofluoromethane	1*	4	U121	D	5000 (2270)
Methanethiol	74931	Methylmercaptan	100	1,4	U153	B	100 (45.4)
		Thiomethanol					
6,9-Methano-2,4,3-benzodioxathiepin, 6,7,8,9,10,10-hexachloro-1,5,5a,6,9,9a-hexahydro-, 3-oxide	115297	Endosulfan	1	1,2,4	P050	X	1 (0.454)
1,3,4-Metheno-2H-cyclobuta[cd]pentalen-2-one, 1,1a,3,3a,4,5,5,5a,5b,6-decachlorooctahydro-	143500	Kepone	1	1,4	U142	X	1 (0.454)
4,7-Methano-1H-indene, 1,4,5,6,7,8,8-heptachloro-3a,4,7,7a-tetrahydro-	76448	Heptachlor	1	1,2,4	P059	X	1 (0.454)
4,7-Methano-1H-indene, 1,2,4,5,6,7,8,8-octachloro-2,3,3a,4,7,7a-hexahydro-	57749	Chlordane	1	1,2,4	U036	X	1 (0.454)
		Chlordane, alpha & gamma isomers					
		Chlordane, technical					
Methanol	67561	Methyl alcohol	1*	4	U154	D	5000 (2270)
Methapyrilene	91805	1,2-Ethanediamine, N,N-dimethyl-N'-2-pyridinyl-N'-(2-thienylmethyl)-.	1*	4	U155	D	5000 (2270)
Methomyl	16752775	Ethanimidothioic acid, N-[[(methylamino)carbonyl]oxy]-, methyl ester.	1*	4	P066	B	100 (45.4)
Methoxychlor	72435	Benzene, 1,1'-(2,2,2-trichloroethylidene) bis[4-methoxy-.	1	1,4	U247	X	1 (0.454)
Methyl alcohol	67561	Methanol	1*	4	U154	D	5000 (2270)
Methyl bromide	74839	Methane, bromo-	1*	2,4	U029	C	1000 (454)
1-Methylbutadiene	504609	1,3-Pentadiene	1*	4	U186	B	100 (45.4)
Methyl chloride	74873	Methane, chloro-	1*	2,4	U045	B	100 (45.4)
Methyl chlorocarbonate	79221	Carbonochloridic acid, methyl ester	1*	4	U156	C	1000 (454)
		Methyl chloroformate					
Methyl chloroform	71556	Ethane, 1,1,1-trichloro-	1*	2,4	U226	C	1000 (454)
		1,1,1-Trichloroethane					
Methyl chloroformate	79221	Carbonochloridic acid, methyl ester	1*	4	U156	C	1000 (454)
		Methyl chlorocarbonate					
3-Methylcholanthrene	56495	Benz[j]aceanthrylene, 1,2-dihydro-3-methyl-	1*	4	U157	A	10 (4.54)

Hazardous substance	CASRN	Regulatory synonyms	Statutory RQ	Statutory Code†	Statutory RCRA waste Number	Final RQ Category	Final RQ Pounds (Kg)
4,4'-Methylenebis(2-chloroaniline)	101144	Benzenamine, 4,4'-methylenebis(2-chloro-	1*	4	U158	A	10 (4.54)
Methylene bromide	74953	Methane, dibromo-	1*	4	U068	C	1000 (454)
Methylene chloride	75092	Methane, dichloro-	1*	2,4	U080	C	1000 (454)
Methyl ethyl ketone (MEK)	78933	2-Butanone	1*	4	U159	D	5000 (2270)
Methyl ethyl ketone peroxide	1338234	2-Butanone peroxide	1*	4	U160	A	10 (4.54)
Methyl hydrazine	60344	Hydrazine, methyl-	1*	4	P068	A	10 (4.54)
Methyl iodide	74884	Methane, iodo-	1*	4	U138	B	100 (45.4)
Methyl isobutyl ketone	108101	4-Methyl-2-pentanone	1*	4	U161	D	5000 (2270)
Methyl isocyanate	624839	Methane, isocyanato-	1*	3,4	P064	A	10 (4.54)
2-Methyllactonitrile	75865	Acetone cyanohydrin	10	1,4	P069	A	10 (4.54)
		Propanenitrile, 2-hydroxy-2-methyl-					
Methylmercaptan	74931	Methanethiol	100	1,4	U153	B	100 (45.4)
		Thiomethanol					
Methyl methacrylate	80626	2-Propenoic acid, 2-methyl-, methyl ester	5000	1,4	U162	C	1000 (454)
Methyl parathion	298000	Phosphorothioic acid, O,O-dimethyl O-(4-nitrophenyl) ester.	100	1,4	P071	B	100 (45.4)
4-Methyl-2-pentanone	108101	Methyl isobutyl ketone	1*	4	U161	D	5000 (2270)
Methylthiouracil	56042	4(1H)-Pyrimidinone, 2,3-dihydro-6-methyl-2-thioxo-	1*	4	U164	A	10 (4.54)
Mevinphos	7786347		1	1		A	10 (4.54)
Mexacarbate	315184		1000	1		C	1000 (454)
Mitomycin C	50077	Azirino[2',3':3,4]pyrrolo[1,2-a]indole-4,7-dione, 6-amino-8-[[(aminocarbonyl)oxy] methyl]-1,1a,2,8,8a,8b-hexahydro-8a-methoxy-5-methyl-, [1aS-(1aalpha, 8beta, 8aalpha, 8balpha)]-.	1*	4	U010	A	10 (4.54)
MNNG	70257	Guanidine, N-methyl-N'-nitro-N-nitroso-	1*	4	U163	A	10 (4.54)
Monoethylamine	75047		1000	1		B	100 (45.4)
Monomethylamine	74895		1000	1		B	100 (45.4)
Multi Source Leachate			1*	4	F039	X	1 (0.454)
Muscimol	2763964	3(2H)-Isoxazolone, 5-(aminomethyl)- 5-(Aminomethyl)-3-isoxazolol.	1*	4	P007	C	1000 (454)
Naled	300765		10	1		A	10 (4.54)
5,12-Naphthacenedione, 8-acetyl-10-[(3-amino-2,3,6-trideoxy-alpha-L-lyxo-hexopyranosyl)oxy]-7,8,9,10-tetrahydro-6,8,11-trihydroxy-1-methoxy-, (8S-cis)-	20830813	Daunomycin	1*	4	U059	A	10 (4.54)
1-Naphthalenamine	134327	alpha-Naphthylamine	1*	4	U167	B	100 (45.4)
2-Naphthalenamine	91598	beta-Naphthylamine	1*	4	U168	A	10 (4.54)
Naphthalenamine, N,N'-bis(2-chloroethyl)-	494031	Chlornaphazine	1*	4	U026	B	100 (45.4)
Naphthalene	91203		5000	1,2,4	U165	B	100 (45.4)
Naphthalene, 2-chloro-	91587	beta-Chloronaphthalene 2-Chloronaphthalene	1*	2,4	U047	D	5000 (2270)
1,4-Naphthalenedione	130154	1,4-Naphthoquinone	1*	4	U166	D	5000 (2270)
2,7-Naphthalenedisulfonic acid, 3,3'-[(3,3'-dimethyl-(1,1'-biphenyl)-4,4'-diyl)-bis(azo)]bis(5-amino-4-hydroxy)-tetrasodium salt.	72571	Trypan blue	1*	4	U236	A	10 (4.54)
Naphthenic acid	1338245		100	1		B	100 (45.4)
1,4-Naphthoquinone	130154	1,4-Naphthalenedione	1*	4	U166	D	5000 (2270)
alpha-Naphthylamine	134327	1-Naphthalenamine	1*	4	U167	B	100 (45.4)
beta-Naphthylamine	91598	2-Naphthalenamine	1*	4	U168	A	10 (4.54)
alpha-Naphthylthiourea	86884	Thiourea, 1-naphthalenyl-	1*	4	P072	B	100 (45.4)
Nickel ††	7440020		1*	2		B	100 (45.4)
Nickel ammonium sulfate	15699180		5000	1		B	100 (45.4)

TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES—Continued

[Note: All Comments/Notes Are Located at the End of This Table]

Hazardous substance	CASRN	Regulatory synonyms	Statutory RQ	Statutory Code†	Statutory RCRA waste Number	Final RQ Category	Final RQ Pounds (Kg)
NICKEL AND COMPOUNDS	N.A.		1*	2			**
Nickel carbonyl	13463393	Nickel carbonyl Ni(CO)4, (T-4)-	1*	4	P073	A	10 (4.54)
Nickel carbonyl Ni(CO)4, (T-4)-	13463393	Nickel carbonyl	1*	4	P073	A	10 (4.54)
Nickel chloride	7718549 37211055		5000	1		B	100 (45.4)
Nickel cyanide	557197	Nickel cyanide Ni(CN)2	1*	4	P074	A	10 (4.54)
Nickel cyanide Ni(CN)2	557197	Nickel cyanide	1*	4	P074	A	10 (4.54)
Nickel hydroxide	12054487		1000	1		A	10 (4.54)
Nickel nitrate	14216752		5000	1		B	100 (45.4)
Nickel sulfate	7786814		5000	1		B	100 (45.4)
Nicotine, & salts	54115	Pyridine, 3-(1-methyl-2-pyrrolidinyl)-, (S)-	1*	4	P075	B	100 (45.4)
Nitric acid	7697372		1000	1		C	1000 (454)
Nitric acid, thallium (1+) salt	10102451	Thallium (I) nitrate	1*	4	U217	B	100 (45.4)
Nitric oxide	10102439	Nitrogen oxide NO	1*	4	P076	A	10 (4.54)
p-Nitroaniline	100016	Benzenamine, 4-nitro-	1*	4	P077	D	5000 (2270)
Nitrobenzene	98953	Benzene, nitro-	1000	1,2,4	U169	C	1000 (454)
Nitrogen dioxide	10102440 10544726	Nitrogen oxide NO2	1000	1,4	P078	A	10 (4.54)
Nitrogen oxide NO	10102439	Nitric oxide	1*	4	P076	A	10 (4.54)
Nitrogen oxide NO2	10102440 10544726	Nitrogen dioxide	1000	1,4	P078	A	10 (4.54)
Nitroglycerine	55630	1,2,3-Propanetriol, trinitrate-	1*	4	P081	A	10 (4.54)
Nitrophenol (mixed)	25154556		1000	1		B	100 (45.4)
m-Nitrophenol	554847					B	100 (45.4)
o-Nitrophenol	88755	2-Nitrophenol	—	—			—
p-Nitrophenol	100027	Phenol, 4-nitro- 4-Nitrophenol	—	—			—
o-Nitrophenol	88755	2-Nitrophenol	1000	1,2		B	100 (45.4)
p-Nitrophenol	100027	Phenol, 4-nitro- 4-Nitrophenol	1000	1,2,4	U170	B	100 (45.4)
2-Nitrophenol	88755	o-Nitrophenol	1000	1,2		B	100 (45.4)
4-Nitrophenol	100027	p-Nitrophenol Phenol, 4-nitro-	1000	1,2,4	U170	B	100 (45.4)
NITROPHENOLS	N.A.		1*	2			**
2-Nitropropane	79469	Propane, 2-nitro-	1*	4	U171	A	10 (4.54)
NITROSAMINES	N.A.		1*	2			**
N-Nitrosodi-n-butylamine	924163	1-Butanamine, N-butyl-N-nitroso-	1*	4	U172	A	10 (4.54)
N-Nitrosodiethanolamine	1116547	Ethanol, 2,2'-(nitrosoimino)bis-	1*	4	U173	X	1 (0.454)
N-Nitrosodiethylamine	55185	Ethanamine, N-ethyl-N-nitroso-	1*	4	U174	X	1 (0.454)
N-Nitrosodimethylamine	62759	Methanamine, N-methyl-N-nitroso-	1*	2,4	P082	A	10 (4.54)
N-Nitrosodiphenylamine	86306		1*	2		B	100 (45.4)
N-Nitroso-N-ethylurea	759739	Urea, N-ethyl-N-nitroso-	1*	4	U176	X	1 (0.454)
N-Nitroso-N-methylurea	684935	Urea, N-methyl-N-nitroso-	1*	4	U177	X	1 (0.454)
N-Nitroso-N-methylurethane	615532	Carbamic acid, methylnitroso-, ethyl ester	1*	4	U178	X	1 (0.454)
N-Nitrosomethylvinylamine	4549400	Vinylamine, N-methyl-N-nitroso-	1*	4	P084	A	10 (4.54)
N-Nitrosopiperidine	100754	Piperidine, 1-nitroso-	1*	4	U179	A	10 (4.54)
N-Nitrosopyrrolidine	930552	Pyrrolidine, 1-nitroso-	1*	4	U180	X	1 (0.454)
Nitrotoluene	1321126		1000	1		C	1000 (454)
m-Nitrotoluene	99081						
o-Nitrotoluene	88722						
p-Nitrotoluene	99990						
5-Nitro-o-toluidine	99558	Benzenamine, 2-methyl-5-nitro-	1*	4	U181	B	100 (45.4)
Octamethylpyrophosphoramide	152169	Diphosphoramide, octamethyl-	1*	4	P085	B	100 (45.4)
Osmium oxide OsO4 (T-4)-	20816120	Osmium tetroxide	1*	4	P087	C	1000 (454)
Osmium tetroxide	20816120	Osmium oxide OsO4 (T-4)-	1*	4	P087	C	1000 (454)
7-Oxabicyclo[2.2.1]heptane-2,3-dicarboxylic acid	145733	Endothall	1*	4	P088	C	1000 (454)
1,2-Oxathiolane, 2,2-dioxide	1120714	1,3-Propane sultone	1*	4	U193	A	10 (4.54)
2H-1,3,2-Oxazaphosphorin-2-amine, N,N-bis(2-chloroethyl)tetrahydro-, 2-oxide	50180	Cyclophosphamide	1*	4	U058	A	10 (4.54)
Oxirane	75218	Ethylene oxide	1*	4	U115	A	10 (4.54)
Oxiranecarboxyaldehyde	765344	Glycidylaldehyde	1*	4	U126	A	10 (4.54)
Oxirane, (chloromethyl)-	106898	Epichlorohydrin	1000	1,4	U041	B	100 (45.4)
Paraformaldehyde	30525894		1000	1		C	1000 (454)
Paraldehyde	123637	1,3,5-Trioxane, 2,4,6-trimethyl-	1*	4	U182	C	1000 (454)
Parathion	56382	Phosphorothioic acid, O,O-diethyl O-(4-nitrophenyl) ester.	1	1,4	P089	A	10 (4.54)
Pentachlorobenzene	608935	Benzene, pentachloro-	1*	4	U183	A	10 (4.54)
Pentachloroethane	76017	Ethane, pentachloro-	1*	4	U184	A	10 (4.54)
Pentachloronitrobenzene (PCNB)	82688	Benzene, pentachloronitro-	1*	4	U185	B	100 (45.4)
Pentachlorophenol	87865	Phenol, pentachloro-	10	1,2,4	U242	A	10 (4.54)
1,3-Pentadiene	504609	1-Methylbutadiene	1*	4	U186	B	100 (45.4)
Perchloroethylene	127184	Ethene, tetrachloro- Tetrachloro- ethene Tetrachloroethylene.	1*	2,4	U210	B	100 (45.4)
Phenacetin	62442	Acetamide, N-(4-ethoxyphenyl)-	1*	4	U187	B	100 (45.4)
Phenanthrene	85018		1*	2		D	5000 (2270)
Phenol	108952	Benzene, hydroxy-	1000	1,2,4	U188	C	1000(454)
Phenol, 2-chloro-	95578	o-Chlorophenol 2-Chlorophenol	1*	2,4	U048	B	100 (45.4)
Phenol, 4-chloro-3-methyl-.	59507	p-Chloro-m-cresol 4-Chloro-m-cresol	1*	2,4	U039	D	5000 (2270)
Phenol, 2-cyclohexyl-4,6-dinitro-	131895	2-Cyclohexyl-4,6-dinitrophenol	1*	4	P034	B	100 (45.4)
Phenol, 2,4-dichloro-	120832	2,4-Dichlorophenol	1*	2,4	U081	B	100 (45.4)
Phenol, 2,6-dichloro-	87650	2,6-Dichlorophenol	1*	4	U082	B	100 (45.4)
Phenol, 4,4'-(1,2-diethyl-1,2-ethenediyl)bis-, (E)	56531	Diethylstilbestrol	1*	4	U089	X	1 (0.454)
Phenol, 2,4-dimethyl-	105679	2,4-Dimethylphenol	1*	2,4	U101	B	100(45.4)
Phenol, 2,4-dinitro-	51285	2,4-Dinitrophenol	1000	1,2,4	P048	A	10 (4.54)
Phenol, methyl-	1319773	Cresol(s) Cresylic acid	1000	1,4	U052	C	1000 (454)
m-Cresol	108394	m-Cresylic acid					
o-Cresol	95487	o-Cresylic acid					
p-Cresol	106445	p-Cresylic acid					
Phenol, 2-methyl-4,6-dinitro-	534521	4,6-Dinitro-o-cresol and salts	1*	2,4	P047	A	10 (4.54)
Phenol, 2,2'-methylenebis[3,4,6-trichloro-	70304	Hexachlorophene	1*	4	U132	B	100 (45.4)
Phenol, 2-(1-methylpropyl)-4,6-dinitro	88857	Dinoseb	1*	4	P020	C	1000 (454)
Phenol, 4-nitro-	100027	p-Nitrophenol	1000	1,2,4	U170	B	100 (45.4)

TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES—Continued

[Note: All Comments/Notes Are Located at the End of This Table]

Hazardous substance	CASRN	Regulatory synonyms	Statutory RQ	Statutory Code†	Statutory RCRA waste Number	Final RQ Category	Final RQ Pounds (Kg)
Phenol, pentachloro-	87865	Pentachlorophenol	10	1,2,4	U242	A	10 (4.54)
Phenol, 2,3,4,6-tetrachloro-	58902	2,3,4,6-Tetrachlorophenol	1*	4	U212	A	10 (4.54)
Phenol, 2,4,5-trichloro-	95954	2,4,5-Trichlorophenol	10	1,4	U230	A	10 (4.54)
Phenol, 2,4,6-trichloro-	88062	2,4,6-Trichlorophenol	10	1,2,4	U231	A	10 (4.54)
Phenol, 2,4,6-trinitro-, ammonium salt	131748	Ammonium picrate	1*	4	P009	A	10 (4.54)
L-Phenylalanine, 4-[bis(2-chloroethyl) amino]	148823	Melphalan	1*	4	U150	X	1 (0.454)
1,10-(1,2-Phenylene)pyrene	193395	Indeno(1,2,3-cd)pyrene	1*	2,4	U137	B	100 (45.4)
Phenylmercury acetate	62384	Mercury, (acetato-O)phenyl-	1*	4	P092	B	100 (45.4)
Phenylthiourea	103855	Thiourea, phenyl-	1*	4	P093	B	100 (45.4)
Phorate	298022	Phosphorodithioic acid, O,O-diethyl S-(ethylthio), methyl ester.	1*	4	P094	A	10 (4.54)
Phosgene	75445	Carbonic dichloride	5000	1,4	P095	A	10 (4.54)
Phosphine	7803512		1*	4	P096	B	100 (45.4)
Phosphoric acid	7664382		5000	1		D	5000 (2270)
Phosphoric acid, diethyl 4-nitrophenyl ester	311455	Diethyl-p-nitrophenyl phosphate	1*	4	P041	B	100 (45.4)
Phosphoric acid, lead(2+) salt (2:3)	7446277	Lead phosphate	1*	4	U145	A	10 (4.54)
Phosphorodithioic acid, O,O-diethyl S-[2-(ethylthio)ethyl]ester	298044	Disulfoton	1	1,4	P039	X	1 (0.454)
Phosphorodithioic acid, O,O-diethyl S-(ethylthio), methyl ester	298022	Phorate	1*	4	P094	A	10 (4.54)
Phosphorodithioic acid, O,O-diethyl S-methyl ester	3288582	O,O-Diethyl S-methyl dithiophosphate	1*	4	U087	D	5000 (2270)
Phosphorodithioic acid, O,O-dimethyl S-[2(methylamino)-2-oxoethyl] ester	60515	Dimethoate	1*	4	P044	A	10 (4.54)
Phosphorofluoridic acid, bis(1-methylethyl) ester	55914	Diisopropylfluorophosphate	1*	4	P043	B	100 (45.4)
Phosphorothioic acid, O,O-diethyl O-(4-nitrophenyl) ester	56382	Parathion	1	1,4	P089	A	10 (4.54)
Phosphorothioic acid, O,[4-[(dimethylamino) sulfonyl]phenyl]O,O-dimethyl ester	52857	Famphur	1*	4	P097	C	1000 (454)
Phosphorothioic acid, O,O-dimethyl O-(4-nitrophenyl) ester	298000	Methyl parathion	100	1,4	P071	B	100 (45.4)
Phosphorothioic acid, O,O-diethyl O-pyrazinyl ester	297972	O,O-Diethyl O-pyrazinyl phosphorothioate	1*	4	P040	B	100 (45.4)
Phosphorus	7723140		1	1		X	1 (0.454)
Phosphorus oxychloride	10025873		5000	1		C	1000 (454)
Phosphorus pentasulfide	1314803	Phosphorus sulfide Sulfur phosphide	100	1,4	U189	B	100 (45.4)
Phosphorus sulfide	1314803	Phosphorus pentasulfide Sulfur phosphide	100	1,4	U189	B	100 (45.4)
Phosphorus trichloride	7719122		5000	1		C	1000 (454)
PHTHALATE ESTERS	N.A.		1*	2			**
Phthalic anhydride	85449	1,3-Isobenzofurandione	1*	4	U190	D	5000 (2270)
2-Picoline	109068	Pyridine, 2-methyl-	1*	4	U191	D	5000 (2270)
Piperidine, 1-nitroso-	100754	N-Nitrosopiperidine	1*	4	U179	A	10 (4.54)
Plumbane, tetraethyl-	78002	Tetraethyl lead	100	1,4	P110	A	10 (4.54)

Hazardous substance	CASRN	Regulatory synonyms	Statutory RQ	Statutory Code†	Statutory RCRA waste Number	Final RQ Category	Final RQ Pounds (Kg)
POLYCHLORINATED BIPHENYLS (PCBs)	1336363		10	1,2		X	1 (0.454)
Aroclor 1016	12674112	POLYCHLORINATED BIPHENYLS (PCBs)					
Aroclor 1221	11104282	POLYCHLORINATED BIPHENYLS (PCBs)					
Aroclor 1232	11141165	POLYCHLORINATED BIPHENYLS (PCBs)					
Aroclor 1242	53469219	POLYCHLORINATED BIPHENYLS (PCBs)					
Aroclor 1248	12672296	POLYCHLORINATED BIPHENYLS (PCBs)					
Aroclor 1254	11097691	POLYCHLORINATED BIPHENYLS (PCBs)					
Aroclor 1260	11096825	POLYCHLORINATED BIPHENYLS (PCBs)					
POLYNUCLEAR AROMATIC HYDROCARBONS	N.A.		1*	2			**
Potassium arsenate	7784410		1000	1		X	1 (0.454)
Potassium arsenite	10124502		1000	1		X	1 (0.454)
Potassium bichromate	7778509		1000	1		A	10 (4.54)
Potassium chromate	7789006		1000	1		A	10 (4.54)
Potassium cyanide	151508	Potassium cyanide K (CN)	10	1,4	P098	A	10 (4.54)
Potassium cyanide K(CN)	151508	Potassium cyanide	10	1,4	P098	A	10 (4.54)
Potassium hydroxide	1310583		1000	1		C	1000 (454)
Potassium permanganate	7722647		100	1		B	100 (45.4)
Potassium silver cyanide	506616	Argentate (1-), bis(cyano-C)-, potassium	1*	4	P099	X	1 (0.454)
Pronamide	23950585	Benzamide, 3,5-dichloro-N-(1,1-dimethyl-2-propynyl)-.	1*	4	U192	D	5000 (2270)
Propanal, 2-methyl-2-(methylthio)-, O-[(methylamino)carbonyl]oxime	116063	Aldicarb	1*	4	P070	X	1 (0.454)
1-Propanamine	107108	n-Propylamine	1*	4	U194	D	5000 (2270)
1-Propanamine, N-propyl-	142847	Dipropylamine	1*	4	U110	D	5000 (2270)
1-Propanamine, N-nitroso-N-propyl-	621647	Di-n-propylnitrosamine	1*	2,4	U111	A	10 (4.54)
Propane, 1,2-dibromo-3-chloro-	96128	1,2-Dibromo-3-chloropropane	1*	4	U066	X	1 (0.454)
Propane, 2-nitro-	79469	2-Nitropropane	1*	4	U171	A	10 (4.54)
1,3-Propane sultone	1120714	1,2-Oxathiolane, 2,2-dioxide	1*	4	U193	A	10 (4.54)
Propane, 1,2-dichloro-	78875	Propylene dichloride 1,2-Dichloropropane	5000	1,2,4	U083	C	1000 (454)
Propanedinitrile	109773	Malononitrile	1*	4	U149	C	1000 (454)
Propanenitrile	107120	Ethyl cyanide	1*	4	P101	A	10 (4.54)
Propanenitrile, 3-chloro-	542767	3-Chloropropionitrile	1*	4	P027	C	1000 (454)
Propanenitrile, 2-hydroxy-2-methyl-	75865	Acetone cyanohydrin 2-Methyllactonitrile	10	1,4	P069	A	10 (4.54)
Propane, 2,2'-oxybis(2-chloro-	108601	Dichloroisopropyl ether	1*	2,4	U027	C	1000 (454)
1,2,3-Propanetriol, trinitrate-	55630	Nitroglycerine	1*	4	P081	A	10 (4.54)
1-Propanol, 2,3-dibromo-, phosphate (3:1)	126727	Tris(2,3-dibromopropyl) phosphate	1*	4	U235	A	10 (4.54)
1-Propanol, 2-methyl-	78831	Isobutyl alcohol	1*	4	U140	D	5000 (2270)
2-Propanone	67641	Acetone	1*	4	U002	D	5000 (2270)
2-Propanone, 1-bromo-	598312	Bromoacetone	1*	4	P017	C	1000 (454)
Propargite	2312358		10	1		A	10 (4.54)
Propargyl alcohol	107197	2-Propyn-1-ol	1*	4	P102	C	1000 (454)
2-Propenal	107028	Acrolein	1	1,2,4	P003	X	1 (0.454)
2-Propenamide	79061	Acrylamide	1*	4	U007	D	5000 (2270)
1-Propene, 1,1,2,3,3,3-hexachloro-	1888717	Hexachloropropene	1*	4	U243	C	1000 (454)
1-Propene, 1,3-dichloro-	542756	1,3-Dichloropropene	5000	1,2,4	U084	B	100 (45.4)
2-Propenenitrile	107131	Acrylonitrile	100	1,2,4	U009	B	100 (45.4)
2-Propenenitrile, 2-methyl-	126987	Methacrylonitrile	1*	4	U152	C	1000 (454)
2-Propenoic acid	79107	Acrylic acid	1*	4	U008	D	5000 (2270)

TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES—Continued

[Note: All Comments/Notes Are Located at the End of This Table]

Hazardous substance	CASRN	Regulatory synonyms	Statutory			Final RQ	
			RQ	Code†	RCRA waste Number	Category	Pounds (Kg)
2-Propenoic acid, ethyl ester	140885	Ethyl acrylate	1*	4	U113	C	1000 (454)
2-Propenoic acid, 2-methyl-, ethyl ester	97632	Ethyl methacrylate	1*	4	U118	C	1000 (454)
2-Propenoic acid, 2-methyl-, methyl ester	80626	Methyl methacrylate	5000	1,4	U162	C	1000 (454)
2-Propen-1-ol	107186	Allyl alcohol	100	1,4	P005	B	100 (45.4)
Propionic acid	79094		5000	1		D	5000 (2270)
Propanoic acid, 2-(2,4,5-trichlorophenoxy)-	93721	Silvex (2,4,5-TP) 2,4,5-TP acid	100	1,4	U233	B	100 (45.4)
Propionic anhydride	123626		5000	1		D	5000 (2270)
n-Propylamine	107108	1-Propanamine	1*	4	U194	D	5000 (2270)
Propylene dichloride	78875	Propane, 1,2-dichloro- 1,2-Dichloropropane	5000	1,2,4	U083	C	1000 (454)
Propylene oxide	75569		5000	1		B	100 (45.4)
1,2-Propylenimine	75558	Aziridine, 2-methyl-	1*	4	P067	X	1 (0.454)
2-Propyn-1-ol	107197	Propargyl alcohol	1*	4	P102	C	1000 (454)
Pyrene	129000		1*	2		D	5000 (2270)
Pyrethrins	121299 121211 8003347		1000	1		X	1 (0.454)
3,6-Pyridazinedione, 1,2-dihydro-	123331	Maleic hydrazide	1*	4	U148	D	5000 (2270)
4-Pyridinamine	504245	4-Aminopyridine	1*	4	P008	C	1000 (454)
Pyridine	110861		1*	4	U196	C	1000 (454)
Pyridine, 2-methyl-	109068	2-Picoline	1*	4	U191	D	5000 (2270)
Pyridine, 3-(1-methyl-2-pyrrolidinyl)-, (S)-	54115	Nicotine, & salts	1*	4	P075	B	100 (45.4)
~~2,4-(1H,3H)-Pyrimidinedione, 5-[bis(2-chloroethyl)amino]-~~	~~66751~~	~~Uracil mustard~~	~~1*~~	~~4~~	~~U237~~	~~A~~	~~10 (4.54)~~
4(1H)-Pyrimidinone, 2,3-dihydro-6-methyl-2-thioxo-	56042	Methylthiouracil	1*	4	U164	A	10 (4.54)
Pyrrolidine, 1-nitroso-	930552	N-Nitrosopyrrolidine	1*	4	U180	X	1 (0.454)
Quinoline	91225		1000	1		D	5000 (2270)
RADIONUCLIDES	N.A.		1*	3			§
Reserpine	50555	Yohimban-16-carboxylic acid, 11,17-dimethoxy-18-[(3,4,5-trimethoxybenzoyl)oxy]-, methyl ester (3beta, 16beta,17alpha,18beta,20alpha)-	1*	4	U200	D	5000 (2270)
Resorcinol	108463	1,3-Benzenediol	1000	1,4	U201	D	5000 (2270)
Saccharin and salts	81072	1,2-Benzisothiazol-3(2H)-one, 1,1-dioxide	1*	4	U202	B	100 (45.4)
Safrole	94597	1,3-Benzodioxole, 5-(2-propenyl)-	1*	4	U203	B	100 (45.4)
Selenious acid	7783008		1*	4	U204	A	10 (4.54)
Selenious acid, dithallium (1+) salt	12039520	Thallium selenite	1*	4	P114	C	1000 (454)
Selenium ††	7782492		1*	2		B	100 (45.4)
SELENIUM AND COMPOUNDS	N.A.		1*	2			**
Selenium dioxide	7446084	Selenium oxide	1000	1,4	U204	A	10 (4.54)
Selenium oxide	7446084	Selenium dioxide	1000	1,4	U204	A	10 (4.54)

Hazardous substance	CASRN	Regulatory synonyms	RQ	Code†	RCRA waste Number	Category	Pounds (Kg)
Selenium sulfide	7488564	Selenium sulfide SeS2	1*	4	U205	A	10 (4.54)
Selenium sulfide SeS2	7488564	Selenium sulfide	1*	4	U205	A	10 (4.54)
Selenourea	630104		1*	4	P103	C	1000 (454)
L-Serine, diazoacetate (ester)	115026	Azaserine	1*	4	U015	X	1 (0.454)
~~Silver ††~~	~~7440224~~		~~1*~~	~~2~~		~~C~~	~~1000 (454)~~
SILVER AND COMPOUNDS	N.A.		1*	2			**
Silver cyanide	506649	Silver cyanide Ag (CN)	1*	4	P104	X	1 (0.454)
Silver cyanide Ag (CN)	506649	Silver cyanide	1*	4	P104	X	1 (0.454)
Silver nitrate	7761888		1	1		X	1 (0.454)
Silvex (2,4,5-TP)	93721	Propanoic acid, 2-(2,4,5-trichlorophenoxy)- 2,4,5-TP acid	100	1,4	U233	B	100 (45.4)
Sodium	7440235		1000	1		A	10 (4.54)
Sodium arsenate	7631892		1000	1		X	1 (0.454)
Sodium arsenite	7784465		1000	1		X	1 (0.454)
Sodium azide	26628228		1*	4	P105	C	1000 (454)
Sodium bichromate	10588019		1000	1		A	10 (4.54)
Sodium bifluoride	1333831		5000	1		B	100 (45.4)
Sodium bisulfite	7631905		5000	1		D	5000 (2270)
Sodium chromate	7775113		1000	1		A	10 (4.54)
Sodium cyanide	143339	Sodium cyanide Na (CN)	10	1,4	P106	A	10 (4.54)
Sodium cyanide Na (CN)	143339	Sodium cyanide	10	1,4	P106	A	10 (4.54)
Sodium dodecylbenzenesulfonate	25155300		1000	1		C	1000 (454)
Sodium fluoride	7681494		5000	1		C	1000 (454)
Sodium hydrosulfide	16721805		5000	1		D	5000 (2270)
Sodium hydroxide	1310732		1000	1		C	1000 (454)
Sodium hypochlorite	7681529 10022705		100	1		B	100 (45.4)
Sodium methylate	124414		1000	1		C	1000 (454)
Sodium nitrite	7632000		100	1		B	100 (45.4)
Sodium phosphate, dibasic	7558794 10039324 10140655		5000	1		D	5000 (2270)
Sodium phosphate, tribasic	7601549 7758294 7785844 10101890 10124568 10361894		5000	1		D	5000 (2270)
Sodium selenite	10102188 7782823		1000	1		B	100 (45.4)
Streptozotocin	18883664	D-Glucose, 2-deoxy-2-[[(methylnitrosoamino)-carbonyl]amino]- Glucopyranose, 2-deoxy-2-(3-methyl-3-nitrosoureido)-	1*	4	U206	X	1 (0.454)
Strontium chromate	7789062		1000	1		A	10 (4.54)
Strychnidin-10-one	57249	Strychnine, & salts	10	1,4	P108	A	10 (4.54)
Strychnidin-10-one, 2,3-dimethoxy-	357573	Brucine	1*	4	P018	B	100 (45.4)
Strychnine, & salts	57249	Strychnidin-10-one	10	1,4	P108	A	10 (4.54)
Styrene	100425		1000	1		C	1000 (454)
[illegible]ochloride	12771083		[illegible]			[illegible]	[illegible]

TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES—Continued

[Note: All Comments/Notes Are Located at the End of This Table]

Hazardous substance	CASRN	Regulatory synonyms	Statutory			Final RQ	
			RQ	Code†	RCRA waste Number	Category	Pounds (Kg)
Sulfur phosphide	1314803	Phosphorus pentasulfide Phosphorus sulfide	100	1,4	U189	B	100 (45.4)
Sulfuric acid	7664939 8014957		1000	1		C	1000 (454)
Sulfuric acid, dithallium (1+) salt	7446186 10031591	Thallium (I) sulfate	1000	1,4	P115	B	100 (45.4)
Sulfuric acid, dimethyl ester	77781	Dimethyl sulfate	1*	4	U103	B	100 (45.4)
2,4,5-T acid	93765	Acetic acid, (2,4,5-trichlorophenoxy) 2,4,5-T	100	1,4	U232	C	1000 (454)
2,4,5-T amines	2008460 1319728 3813147 6369966 6369977		100	1		D	5000 (2270)
2,4,5-T esters	93798 1928478 2545597 25168154 61792072		100	1		C	1000 (454)
2,4,5-T salts	13560991		100	1		C	1000 (454)
2,4,5-T	93765	Acetic acid, (2,4,5-trichlorophenoxy) 2,4,5-T acid	100	1,4	U232	C	1000 (454)
TDE	72548	Benzene, 1,1'-(2,2-dichloroethylidene)bis[4-chloro- DDD 4,4' DDD.	1	1,2,4	U060	X	1 (0.454)
1,2,4,5-Tetrachlorobenzene	95943	Benzene, 1,2,4,5-tetrachloro-	1*	4	U207	D	5000 (2270)
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	1746016		1*	2		X	1 (0.454)
1,1,1,2-Tetrachloroethane	630206	Ethane, 1,1,1,2-tetrachloro-	1*	4	U208	B	100 (45.4)
1,1,2,2-Tetrachloroethane	79345	Ethane, 1,1,2,2-tetrachloro-	1*	2,4	U209	B	100 (45.4)
Tetrachloroethane	127184	Ethene, tetrachloro- Perchloroethylene Tetrachloroethylene	1*	2,4	U210	B	100 (45.4)
Tetrachloroethylene	127184	Ethene, tetrachloro- Perchloroethylene Tetrachloroethene	1*	2,4	U210	B	100 (45.4)
2,3,4,6-Tetrachlorophenol	58902	Phenol, 2,3,4,6-tetrachloro-	1*	4	U212	A	10 (4.54)
Tetraethyl lead	78002	Plumbane, tetraethyl-	100	1,4	P110	A	10 (4.54)
Tetraethyl pyrophosphate	107493	Diphosphoric acid, tetraethyl ester	100	1,4	P111	A	10 (4.54)
Tetraethyldithiopyrophosphate	3689245	Thiodiphosphoric acid, tetraethyl ester	1*	4	P109	B	100 (45.4)
Tetrahydrofuran	109999	Furan, tetrahydro-	1*	4	U213	C	1000 (454)
Tetranitromethane	509148	Methane, tetranitro-	1*	4	P112	A	10 (4.54)
Tetraphosphoric acid, hexaethyl ester	757584	Hexaethyl tetraphosphate	1*	4	P062	B	100 (45.4)
Thallic oxide	1314325	Thallium oxide Tl2O3	1*	4	P113	B	100 (45.4)
Thallium ††	7440280		1*	2		C	1000 (454)
Thallium and compounds	N.A.		1*	2			**
Thallium (I) acetate	563688	Acetic acid, thallium(1+) salt	1*	4	U214	B	100 (45.4)
Thallium (I) carbonate	6533739	Carbonic acid, dithallium(1+) salt	1*	4	U215	B	100 (45.4)
Thallium (I) chloride	7791120	Thallium chloride TlCl	1*	4	U216	B	100 (45.4)
Thallium chloride TlCl	7791120	Thallium(I) chloride	1*	4	U216	B	100 (45.4)
Thallium (I) nitrate	10102451	Nitric acid, thallium (1+) salt	1*	4	U217	B	100 (45.4)
Thallium oxide Tl2O3	1314325	Thallic oxide	1*	4	P113	B	100 (45.4)
Thallium selenite	12039520	Selenious acid, dithallium(1+) salt	1*	4	P114	C	1000 (454)
Thallium (I) sulfate	7446186 10031591	Sulfuric acid, dithallium(1+) salt	1000	1,4	P115	B	100 (45.4)
Thioacetamide	62555	Ethanethioamide	1*	4	U218	A	10 (4.54)
Thiodiphosphoric acid, tetraethyl ester	3689245	Tetraethyldithiopyrophosphate	1*	4	P109	B	100 (45.4)
Thiofanox	39196184	2-Butanone, 3,3-dimethyl-1-(methylthio)-, O[(methylamino)carbonyl] oxime.	1*	4	P045	B	100 (45.4)
Thioimidodicarbonic diamide [(H2N)C(S)] 2NH	541537	Dithiobiuret	1*	4	P049	B	100 (45.4)
Thiomethanol	74931	Methanethiol Methylmercaptan	100	1,4	U153	B	100 (45.4)
Thioperoxydicarbonic diamide [(H2N)C(S)] 2S2, tetramethyl-.	137268	Thiram	1*	4	U244	A	10 (4.54)
Thiophenol	108985	Benzenethiol	1*	4	P014	B	100 (45.4)
Thiosemicarbazide	79196	Hydrazinecarbothioamide	1*	4	P116	B	100 (45.4)
Thiourea	62566		1*	4	U219	A	10 (4.54)
Thiourea, (2-chlorophenyl)-	5344821	1-(o-Chlorophenyl)thiourea	1*	4	P026	B	100 (45.4)
Thiourea, 1-naphthalenyl-	86884	alpha-Naphthylthiourea	1*	4	P072	B	100 (45.4)
Thiourea, phenyl-	103855	Phenylthiourea	1*	4	P093	B	100 (45.4)
Thiram	137268	Thioperoxydicarbonic diamide [(H2N)C(S)] 2S2, tetramethyl-	1*	4	U244	A	10 (4.54)
Toluene	108883	Benzene, methyl-	1000	1,2,4	U220	C	1000 (454)
Toluenediamine	95807 496720 823405 25376458	Benzenediamine, ar-methyl-	1*	4	U221	A	10 (4.54)
Toluene diisocyanate	584849 91087 26471625	Benzene, 1,3-diisocyanatomethyl-	1*	4	U223	B	100 (45.4)
o-Toluidine	95534	Benzenamine, 2-methyl-	1*	4	U328	B	100 (45.4)
p-Toluidine	106490	Benzenamine, 4-methyl-	1*	4	U353	B	100 (45.4)
o-Toluidine hydrochloride	636215	Benzenamine, 2-methyl-, hydrochloride	1*	4	U222	B	100 (45.4)
Toxaphene	8001352	Camphene, octachloro-	1*	1,2,4	P123	X	1 (0.454)
2,4,5-TP acid	93721	Propanoic acid, 2-(2,4,5-trichlorophenoxy)- Silvex (2,4,5-TP)	100	1,4	U233	B	100 (45.4)
2,4,5-TP esters	32534955		100	1		B	100 (45.4)
1H-1,2,4-Triazol-3-amine	61825	Amitrole	1*	4	U011	A	10 (4.54)
Trichlorfon	52686		1000	1		B	100 (45.4)
1,2,4-Trichlorobenzene	120821		1*	2		B	100 (45.4)
1,1,1-Trichloroethane	71556	Ethane, 1,1,1-trichloro- Methyl chloroform	1*	2,4	U226	C	1000 (454)
1,1,2-Trichloroethane	79005	Ethane, 1,1,2-trichloro-	1*	2,4	U227	B	100 (45.4)

TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES—Continued

[Note: All Comments/Notes Are Located at the End of This Table]

Hazardous substance	CASRN	Regulatory synonyms	Statutory RQ	Statutory Code†	Statutory RCRA waste Number	Final RQ Category	Final RQ Pounds (Kg)
Trichloroethene	79016	Ethene, trichloro- Trichloroethylene	1000	1,2,4	U228	B	100 (45.4)
Trichloroethylene	79016	Ethene, trichloro- Trichloroethene	1000	1,2,4	U228	B	100 (45.4)
Trichloromethanesulfenyl chloride	594423	Methanesulfenyl chloride, trichloro-	1*	4	P118	B	100 (45.4)
Trichloromonofluoromethane	75694	Methane, trichlorofluoro-	1*	4	U121	D	5000 (2270)
Trichlorophenol	25167822		10	1		A	10 (4.54)
2,3,4-Trichlorophenol	15950660						
2,3,5-Trichlorophenol	933788						
2,3,6-Trichlorophenol	933755						
2,4,5-Trichlorophenol	95954	Phenol, 2,4,5-trichloro-	10*	1,4	U230	A	10 (4.54)
2,4,6-Trichlorophenol	88062	Phenol, 2,4,6-trichloro-	10*	1,2,4	U231	A	10 (4.54)
3,4,5-Trichlorophenol	609198						
2,4,5-Trichlorophenol	95954	Phenol, 2,4,5-trichloro-	10*	1,4	U230	A	10 (4.54)
2,4,6-Trichlorophenol	88062	Phenol, 2,4,6-trichloro-	10	1,2,4	U231	A	10 (4.54)
Triethanolamine dodecylbenzenesulfonate	27323417		1000	1		C	1000 (454)
Triethylamine	121448		5000	1		D	5000 (2270)
Trimethylamine	75503		1000	1		B	100 (45.4)
1,3,5-Trinitrobenzene	99354	Benzene, 1,3,5-trinitro-	1*	4	U234	A	10 (4.54)
1,3,5-Trioxane, 2,4,6-trimethyl-	123637	Paraldehyde	1*	4	U182	C	1000 (454)
Tris(2,3-dibromopropyl) phosphate	126727	1-Propanol, 2,3-dibromo-, phosphate (3:1)	1*	4	U235	A	10 (4.54)
Trypan blue	72571	2,7-Naphthalenedisulfonic acid, 3,3'-[(3,3'-dimethyl-(1,1'-biphenyl)-4,4'-diyl)-bis(azo)]bis(5-amino-4-hydroxy)-tetrasodium salt.	1*	4	U236	A	10 (4.54)
Unlisted Hazardous Wastes Characteristic of Corrosivity.	N.A.		1*	4	D002	B	100 (45.4)
Unlisted Hazardous Wastes Characteristics: Characteristic of Toxicity:	N.A.		1*	4			
Arsenic (D004)	N.A.		*1	4	D004	X	1 (0.454)
Barium (D005)	N.A.		*1	4	D005	C	1,000 (454)
Benzene (D018)	N.A.		1000	1, 2, 3, 4	D018	A	10 (4.54)
Cadmium (D006)	N.A.		*1	4	D006	A	10 (4.54)
Carbon tetrachloride (D019)	N.A.		5,000	1, 2, 4	D019	A	10 (4.54)
Chlordane (D020)	N.A.		1	1, 2, 4	D020	X	1 (0.454)
Chlorobenzene (D021)	N.A.		100	1, 2, 4	D021	B	100 (45.4)
Chloroform (D022)	N.A.		5,000	1, 2, 4	D022	A	10 (4.54)
Chromium (D007)	N.A.		*1	4	D007	A	10 (4.54)
o-Cresol (D023)	N.A.		1,000	1, 4	D023	C	1,000 (454)
m-Cresol (D024)	N.A.		1,000	1, 4	D024	C	1,000 (454)
p-Cresol (D025)	N.A.		1,000	1, 4	D025	C	1,000 (454)
Cresol (D026)	N.A.		1,000	1, 4	D026	C	1,000 (454)

Hazardous substance	CASRN	Regulatory synonyms	Statutory RQ	Statutory Code†	Statutory RCRA waste Number	Final RQ Category	Final RQ Pounds (Kg)
2,4-D (D016)	N.A.		100	1, 4	D016	B	100 (45.4)
1,4-Dichlorobenzene (D027)	N.A.		100	1, 2, 4	D027	B	100 (45.4)
1,2-Dichloroethane (D028)	N.A.		5,000	1, 2, 4	D028	B	100 (45.4)
1,1-Dichloroethylene (D029)	N.A.		5,000	1, 2, 4	D029	B	100 (45.4)
2,4-Dinitrotoluene (D030)	N.A.		1,000	1, 2, 4	D030	A	10 (4.54)
Endrin (D012)	N.A.		1	1, 4	D012	X	1 (0.454)
Heptachlor (and epoxide) (D031)	N.A.		1	1, 2, 4	D031	X	1 (0.454)
Hexachlorobenzene (D032)	N.A.		*1	2, 4	D032	A	10 (4.54)
Hexachlorobutadiene (D033)	N.A.		*1	2, 4	D033	X	1 (0.454)
Hexachloroethane (D034)	N.A.		*1	2, 4	D034	B	100 (45.4)
Lead (D008)	N.A.		1*	4	D008	A	10 (4.54)
Lindane (D013)	N.A.		1	1, 4	D013	X	1 (0.454)
Mercury (D009)	N.A.		*1	4	D009	X	1 (0.454)
Methoxychlor (D014)	N.A.		1	1, 4	D014	X	1 (0.454)
Methyl ethyl ketone (D035)	N.A.		*1	4	D035	D	5,000 (2270)
Nitrobenzene (D036)	N.A.		1,000	1, 2, 4	D036	C	1,000 (454)
Pentachlorophenol (D037)	N.A.		10	1, 2, 4	D037	A	10 (4.54)
Pyridine (D038)	N.A.		*1	4	D038	C	1,000 (454)
Selenium (D010)	N.A.		*1	4	D010	A	10 (4.54)
Silver (D011)	N.A.		*1	4	D011	X	1 (0.454)
Tetrachloroethylene (D039)	N.A.		*1	2, 4	D039	B	100 (45.4)
Toxaphene (D015)	N.A.		1	1, 4	D015	X	1 (0.454)
Trichloroethylene (D040)	N.A.		1000	1, 2, 4	D040	B	100 (45.4)
2,4,5-Trichlorophenol (D041)	N.A.		10	1, 4	D041	A	10 (4.54)
2,4,6-Trichlorophenol (D042)	N.A.		10	1, 2, 4	D042	A	10 (4.54)
2,4,5-TP (D017)	N.A.		100	1, 4	D017	B	100 (45.4)
Vinyl chloride (D043)	N.A.		*1	2, 3, 4	D043	X	1 (0.454)
Unlisted Hazardous Wastes Characteristic of Ignitability.	N.A.		1*	4	D001	B	100 (45.4)
Unlisted Hazardous Wastes Characteristic of Reactivity.	N.A.		1*	4	D003	B	100 (45.4)
Uracil mustard	66751	2,4-(1H,3H)-Pyrimidinedione, 5-[bis(2-chloroethyl)amino]-.	1*	4	U237	A	10 (4.54)
Uranyl acetate	541093		5000	1		B	100 (45.4)
Uranyl nitrate	10102064 36478769		5000	1		B	100 (45.4)
Urea, N-ethyl-N-nitroso-	759739	N-Nitroso-N-ethylurea	1*	4	U176	X	1 (0.454)
Urea, N-methyl-N-nitroso	684935	[illegible]	1*	4	U177	X	1 (0.454)
Vanadic acid, ammonium salt	7803556	[illegible]	1*	4	P119	C	1000 (454)
Vanadium oxide V2O5	1314621	Vanadium pentoxide	1000	1,4	P120	C	1000 (454)
Vanadium pentoxide	1314621	Vanadium oxide V2O5	1000	1,4	P120	C	1000 (454)
Vanadyl sulfate	27774136		1000	1		C	1000 (454)
Vinyl chloride	75014	Ethene, chloro-	1*	2,3,4	U043	X	1 (0.454)
Vinyl acetate	108054	Vinyl acetate monomer	1000	1		D	5000 (2270)
Vinyl acetate monomer	108054	Vinyl acetate	1000	1		D	5000 (2270)
Vinylamine, N-methyl-N-nitroso-	4549400	N-Nitrosomethylvinylamine	1*	4	P084	A	10 (4.54)
Vinylidene chloride	75354	Ethene, 1,1-dichloro- 1,1-Dichloroethylene	5000	1,2,4	U078	B	100 (45.4)
Warfarin, & salts, when present at concentrations greater than 0.3%.	81812	2H-1-Benzopyran-2-one, 4-hydroxy-3-(3-oxo-1-phenyl-butyl)-, & salts, when present at concentrations greater than 0.3%.	1*	4	P001	B	100 (45.4)

TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES—Continued

[Note: All Comments/Notes Are Located at the End of This Table]

Hazardous substance	CASRN	Regulatory synonyms	Statutory RQ	Statutory Code†	Statutory RCRA waste Number	Final RQ Category	Final RQ Pounds (Kg)
Xylene (mixed)	1330207	Benzene, dimethyl	1000	1,4	U239	C	1000 (454)
m-Benzene, dimethyl	108383	m-Xylene					
o-Benzene, dimethyl	95476	o-Xylene					
p-Benzene, dimethyl	106423	p-Xylene					
Xylenol	1300716		1000	1		C	1000 (454)
Yohimban-16-carboxylic acid,11,17-dimethoxy-18-[(3,4,5-trimethoxybenzoyl)oxy]-, methyl ester (3beta,16beta,17alpha, 18beta, 20alpha)-	50555	Reserpine	1*	4	U200	D	5000 (2270)
Zinc ††	7440666		1*	2		C	1000 (454)
ZINC AND COMPOUNDS	N.A.		1*	2			**
Zinc acetate	557346		1000	1		C	1000 (454)
Zinc ammonium chloride	52628258 14639975 14639986		5000	1		C	1000 (454)
Zinc borate	1332076		1000	1		C	1000 (454)
Zinc bromide	7699458		5000	1		C	1000 (454)
Zinc carbonate	3486359		1000	1		C	1000 (454)
Zinc chloride	7646857		5000	1		C	1000 (454)
Zinc cyanide	557211	Zinc cyanide Zn(CN)2	10	1,4	P121	A	10 (4.54)
Zinc cyanide Zn(CN)2	557211	Zinc cyanide	10	1,4	P121	A	10 (4.54)
Zinc fluoride	7783495		1000	1		C	1000 (454)
Zinc formate	557415		1000	1		C	1000 (454)
Zinc hydrosulfite	7779864		1000	1		C	1000 (454)
Zinc nitrate	7779886		5000	1		C	1000 (454)
Zinc phenolsulfonate	127822		5000	1		D	5000 (2270)
Zinc phosphide	1314847	Zinc phosphide Zn3P2, when present at concentrations greater than 10%.	100	1,4	P122	B	100 (45.4)
Zinc phosphide Zn3P2, when present at concentrations greater than 10%.	1314847	Zinc phosphide	100	1,4	P122	B	100 (45.4)
Zinc silicofluoride	16871719		5000	1		D	5000 (2270)
Zinc sulfate	7733020		1000	1		C	1000 (454)
Zirconium nitrate	13746899		5000	1		D	5000 (2270)
Zirconium potassium fluoride	16923958		1000	1		C	1000 (454)
Zirconium sulfate	14644612		5000	1		D	5000 (2270)
Zirconium tetrachloride	10026116		5000	1		D	5000 (2270)
F001			1*	4	F001	A	10 (4.54)

Hazardous substance	CASRN	Regulatory synonyms	Statutory RQ	Statutory Code†	Statutory RCRA waste Number	Final RQ Category	Final RQ Pounds (Kg)
The following spent halogenated solvents used in degreasing; all spent solvent mixtures/blends used in degreasing containing, before use, a total of ten percent or more (by volume) of one or more of the above halogenated solvents or those solvents listed in F002, F004, and F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.							
(a) Tetrachloroethylene	127184		1*	2,4	U210	B	100 (45.4)
(b) Trichloroethylene	79016		1000	1,2,4	U228	B	100 (45.4)
(c) Methylene chloride	75092		1*	2,4	U080	C	1000 (454)
(d) 1,1,1-Trichloroethane	71556		1*	2,4	U226	C	1000 (454)
(e) Carbon tetrachloride	56235		5000	1,2,4	U211	A	10 (4.54)
(f) Chlorinated fluorocarbons	N.A.					D	5000 (2270)
F002			1*	4	F002	A	10 (4.54)
The following spent halogenated solvents; all spent solvent mixtures/blends containing, before use, a total of ten percent or more (by volume) of one or more of the above halogenated solvents or those listed in F001, F004, or F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.							
(a) Tetrachloroethylene	127184		1*	2,4	U210	B	100 (45.4)
(b) Methylene chloride	75092		1*	2,4	U080	C	1000 (454)
(c) Trichloroethylene	79016		1000	1,2,4	U228	B	100 (45.4)
(d) 1,1,1-Trichloroethane	71556		1*	2,4	U226	C	1000 (454)
(e) Chlorobenzene	108907		100	1,2,4	U037	B	100 (45.4)
(f) 1,1,2-Trichloro-1,2,2-trifluoroethane	76131					D	5000 (2270)
(g) o-Dichlorobenzene	95501		100	1,2,4	U070	B	100 (45.4)
(h) Trichlorofluoromethane	75694		1*	4	U121	D	5000 (2270)
(i) 1,1,2-Trichloroethane	79005		1*	2,4	U227	B	100 (45.4)
F003			1*	4	F003	B	100 (45.4)
The following spent non-halogenated solvents and the still bottoms from the recovery of these solvents:							
(a) Xylene	1330207					C	1000 (454)
(b) Acetone	67641					D	5000 (2270)
(c) Ethyl acetate	141786					D	5000 (2270)
(d) Ethylbenzene	100414					C	1000 (454)
(e) Ethyl ether	60297					B	100 (45.4)
(f) Methyl isobutyl ketone	108101					D	5000 (2270)
(g) n-Butyl alcohol	71363					D	5000 (2270)
(h) Cyclohexanone	108941					D	5000 (2270)
(i) Methanol	67561					D	5000 (2270)
F004			1*	4	F004	C	1000 (454)
The following spent non-halogenated solvents and the still bottoms from the recovery of these solvents:							
(a) Cresols/Cresylic acid	1319773		1000	1,4	U052	C	1000 (454)
[illegible]	[illegible]		1000	1,2,4	U169	C	1000 (454)

TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES—Continued

[Note: All Comments/Notes Are Located at the End of This Table]

Hazardous substance	CASRN	Regulatory synonyms	Statutory			Final RQ	
			RQ	Code†	RCRA waste Number	Category	Pounds (Kg)
F005			1*	4	F005	B	100 (45.4)
The following spent non-halogenated solvents and the still bottoms from the recovery of these solvents:							
(a) Toluene	108883		1000	1,2,4	U220	C	1000 (454)
(b) Methyl ethyl ketone	78933		1*	4	U159	D	5000 (2270)
(c) Carbon disulfide	75150		5000	1,4	P022	B	100 (45.4)
(d) Isobutanol	78831		1*	4	U140	D	5000 (2270)
(e) Pyridine	110861		1*	4	U196	C	1000 (454)
F006			1*	4	F006	A	10 (4.54)
Wastewater treatment sludges from electroplating operations except from the following processes: (1) sulfuric acid anodizing of aluminum, (2) tin plating on carbon steel, (3) zinc plating (segregated basis) on carbon steel, (4) aluminum or zinc-aluminum plating on carbon steel, (5) cleaning/stripping associated with tin, zinc and aluminum plating on carbon steel, and (6) chemical etching and milling of aluminum.							
F007			1*	4	F007	A	10 (4.54)
Spent cyanide plating bath solutions from electroplating operations.							
F008			1*	4	F008	A	10 (4.54)
Plating bath residues from the bottom of plating baths from electroplating operations where cyanides are used in the process.							
F009			1*	4	F009	A	10 (4.54)
Spent stripping and cleaning bath solutions from electroplating operations where cyanides are used in the process.							
F010			1*	4	F010	A	10 (4.54)
Quenching bath residues from oil baths from metal heat treating operations where cyanides are used in the process.							
F011			1*	4	F011	A	10 (4.54)
Spent cyanide solution from salt bath pot cleaning from metal heat treating operations.							
F012			1*	4	F012	A	10 (4.54)

Quenching wastewater treatment sludges from metal heat treating operations where cyanides are used in the process.							
F019			1	4	F019	A	10 (4.54)
Wastewater treatment sludges from the chemical conversion coating of aluminum except from zirconium phosphating in aluminum can washing when such phosphating is an exclusive conversion coating process							
F020			1*	4	F020	X	1 (0.454)
Wastes (except wastewater and spent carbon from hydrogen chloride purification) from the production or manufacturing use (as a reactant, chemical intermediate, or component in a formulating process) of tri-or-tetrachlorophenol, or of intermediates used to produce their pesticide derivatives. (This listing does not include wastes from the production of hexachlorophene from highly purified 2,4,5-trichlorophenol.)							
F021			1*	4	F021	X	1 (0.454)
Wastes (except wastewater and spent carbon from hydrogen chloride purification) from the production or manufacturing use (as a reactant, chemical intermediate, or component in a formulating process) of pentachlorophenol, or of intermediates used to produce its derivatives.							
F022			1*	4	F022	X	1 (0.454)
Wastes (except wastewater and spent carbon from hydrogen chloride purification) from the manufacturing use (as a reactant, chemical intermediate, or component in a formulating process) of tetra-, penta-, or hexachlorobenzenes under alkaline conditions.							
F023			1*	4	F023	X	1 (0.454)
Wastes (except wastewater and spent carbon from hydrogen chloride purification) from the production of materials on equipment previously used for the production or manufacturing use (as a reactant, chemical intermediate, or component in a formulating process) of tri- and tetrachlorophenols. (This listing does not include wastes from equipment used only for the production or use of hexachlorophene from highly purified 2,4,5-trichlorophenol.)							
F024			1*	4	F024	X	1 (0.454)

TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES—Continued

[Note: All Comments/Notes Are Located at the End of This Table]

Hazardous substance	CASRN	Regulatory synonyms	Statutory			Final RQ	
			RQ	Code†	RCRA waste Number	Category	Pounds (Kg)
Wastes, including but not limited to distillation residues, heavy ends, tars, and reactor cleanout wastes, from the production of chlorinated aliphatic hydrocarbons, having carbon content from one to five, utilizing free radical catalyzed processes. (This listing does not include light ends, spent filters and filter aids, spent dessicants(sic), wastewater, wastewater treatment sludges, spent catalysts, and wastes listed in Section 261.32.)							
F025			1*	4	F025	X	1 (0.454)
Condensed light ends, spent filters and filter aids, and spent desiccant wastes from the production of certain chlorinated aliphatic hydrocarbons, by free radical catalyzed processes. These chlorinated aliphatic hydrocarbons are those having carbon chain lengths ranging from one to and including five, with varying amounts and positions of chlorine substitution..							
F026			1*	4	F026	X	1 (0.454)
Wastes (except wastewater and spent carbon from hydrogen chloride purification) from the production of materials on equipment previously used for the manufacturing use (as a reactant, chemical intermediate, or component in a formulating process) of tetra-, penta-, or hexachlorobenzene under alkaline conditions.							
F027			1*	4	F027	X	1 (0.454)
Discarded unused formulations containing tri-, tetra-, or pentachlorophenol or discarded unused formulations containing compounds derived from these chlorophenols. (This listing does not include formulations containing hexachlorophene synthesized from prepurified 2,4,5-tri-chlorophenol as the sole component.)							
F028			1*	4	F028	X	1 (0.454)
Residues resulting from the incineration or thermal treatment of soil contaminated with EPA Hazardous Waste Nos. F020, F021, F022, F023, F026, and F027.							
F032			1*	4	F032	X	1(0.454)
Wastewaters (except those that have not come into contact with process contaminants), process residuals, preservative drippage, and spent formulations from wood preserving processes generated at plants that currently use or have previously used chlorophenolic formulations (except potentially cross-contaminated wastes that have had the F032 waste code deleted in accordance with §261.35 of this chapter or potentially cross-contaminated wastes that are otherwise currently regulated as hazardous wastes (i.e., F034 or F035), and where the generator does not resume or initiate use of chlorophenolic formulations). This listing does not include K001 bottom sediment sludge from the treatment of wastewater from wood preserving processes that use creosote and/or pentachlorophenol.							
F034			1*	4	F034	X	1(0.454)
Wastewaters (except those that have not come into contact with process contaminants), process residuals, preservative drippage, and spent formulations from wood preserving processes generated at plants that use creosote formulations. This listing does not include K001 bottom sediment sludge from the treatment of wastewater from wood preserving processes that use creosote and/or pentachlorophenol.							
F035			1*	4	F035	X	1(0.454)
Wastewaters (except those that have not come into contact with process contaminants), process residuals, preservative drippage, and spent formulations from wood preserving processes generated at plants that use inorganic preservatives containing arsenic or chromium. This listing does not include K001 bottom sediment sludge from the treatment of wastewater from wood preserving processes that use creosote and/or pentachlorophenol.							
F037			1*	4	F037	X	1 (0.454)

TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES—Continued

[Note: All Comments/Notes Are Located at the End of This Table]

Hazardous substance	CASRN	Regulatory synonyms	Statutory			Final RQ	
			RQ	Code†	RCRA waste Number	Category	Pounds (Kg)
Petroleum refinery primary oil/water/solids separation sludge—Any sludge generated from the gravitational separation of oil/water/solids during the storage or treatment of process wastewaters and oily cooling wastewaters from petroleum refineries. Such sludges include, but are not limited to, those generated in: oil/water/solids separators; tanks and impoundments; ditches and other conveyances; sumps; and stormwater units receiving dry weather flow. Sludge generated in stormwater units that do not receive dry weather flow, sludges generated from non-contact once-through cooling waters segregated for treatment from other process or oily cooling waters, sludges generated in aggressive biological treatment units as defined in §261.31(b)(2) (including sludges generated in one or more additional units after wastewaters have been treated in aggressive biological treatment units) and K051 wastes are not included in this listing.							
F038			1*	4	F038	X	1 (0.454)
Petroleum refinery secondary (emulsified) oil/water/solids separation sludge—Any sludge and/or float generated from the physical and/or chemical separation of oil/water/solids in process wastewaters and oily cooling wastewaters from petroleum refineries. Such wastes include, but are not limited to, all sludges and floats generated in: induced air flotation (IAF) units, tanks and impoundments, and all sludges generated in DAF units. Sludges generated in stormwater units that do not receive dry weather flow, sludges generated from once-through non-contact cooling waters segregated for treatment from other process or oil cooling wastes, sludges and floats generated in aggressive biological treatment units as defined in §261.31(b)(2) (including sludges and floats generated in one or more additional units after wastewaters have been treated in aggressive biological treatment units) and F037, K048, and K051 wastes are not included in this listing.							
K001			1*	4	K001	X	1 (0.454)
Bottom sediment sludge from the treatment of wastewaters from wood preserving processes that use creosote and/or pentachlorophenol.							
K002			1*	4	K002	A	10 (4.54)
Wastewater treatment sludge from the production of chrome yellow and orange pigments.							
K003			1*	4	K003	A	10 (4.54)
Wastewater treatment sludge from the production of molybdate orange pigments.							
K004			1*	4	K004	A	10 (4.54)
Wastewater treatment sludge from the production of zinc yellow pigments.							
K005			1*	4	K005	A	10 (4.54)
Wastewater treatment sludge from the production of chrome green pigments.							
K006			1*	4	K006	A	10 (4.54)
Wastewater treatment sludge from the production of chrome oxide green pigments (anhydrous and hydrated).							
K007			1*	4	K007	A	10 (4.54)
Wastewater treatment sludge from the production of iron blue pigments.							
K008			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES—Continued

[Note: All Comments/Notes Are Located at the End of This Table]

Hazardous substance	CASRN	Regulatory synonyms	Statutory			Final RQ	
			RQ	Code†	RCRA waste Number	Category	Pounds (Kg)
Oven residue from the production of chrome oxide green pigments. K008			1*	4	K008	A	10 (4.54)
Distillation bottoms from the production of acetaldehyde from ethylene. K009			1*	4	K009	A	10 (4.54)
Distillation side cuts from the production of acetaldehyde from ethylene. K010			1*	4	K010	A	10 (4.54)
Bottom stream from the wastewater stripper in the production of acrylonitrile. K011			1*	4	K011	A	10 (4.54)
Bottom stream from the acetonitrile column in the production of acrylonitrile. K013			1*	4	K013	A	10 (4.54)
Bottoms from the acetonitrile purification column in the production of acrylonitrile. K014			1*	4	K014	D	5000 (2270)
Still bottoms from the distillation of benzyl chloride. K015			1*	4	K015	A	10 (4.54)
Heavy ends or distillation residues from the production of carbon tetrachloride. K016			1*	4	K016	X	1 (0.454)
Heavy ends (still bottoms) from the purification column in the production of epi-chlorohydrin. K017			1*	4	K017	A	10 (4.54)
Heavy ends from the fractionation column in ethyl chloride production. K018			1*	4	K018	X	1 (0.454)
Heavy ends from the distillation of ethylene dichloride in ethylene dichloride production. K019			1*	4	K019	X	1 (0.454)
Heavy ends from the distillation of vinyl chloride in vinyl chloride monomer production. K020			1*	4	K020	X	1 (0.454)
K021			1*	4	K021	A	10 (4.54)
Aqueous spent antimony catalyst waste from fluoromethanes production. K022			1*	4	K022	X	1 (0.454)
Distillation bottom tars from the production of phenol/acetone from cumene. K023			1*	4	K023	D	5000 (2270)
Distillation light ends from the production of phthalic anhydride from naphthalene. K024			1*	4	K024	D	5000 (2270)
Distillation bottoms from the production of phthalic anhydride from naphthalene. K025			1*	4	K025	A	10 (4.54)
Distillation bottoms from the production of nitrobenzene by the nitration of benzene. K026			1*	4	K026	C	1000 (454)
Stripping still tails from the production of methyl ethyl pyridines. K027			1*	4	K027	A	10 (4.54)
Centrifuge and distillation residues from toluene diisocyanate production. K028			1*	4	K028	X	1 (0.454)
Spent catalyst from the hydrochlorinator reactor in the production of 1,1,1-trichloroethane. K029			1*	4	K029	X	1 (0.454)
Waste from the product steam stripper in the production of 1,1,1-trichloroethane. K030			1*	4	K030	X	1 (0.454)
Column bottoms or heavy ends from the combined production of trichloroethylene and perchloroethylene. K031			1*	4	K031	X	1 (0.454)
By-product salts generated in the production of MSMA and cacodylic acid. K032			1*	4	K032	A	10 (4.54)
Wastewater treatment sludge from the production of chlordane. K033			1*	4	K033	A	10 (4.54)
Wastewater and scrub water from the chlorination of [illegible]			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES—Continued

[Note: All Comments/Notes Are Located at the End of This Table]

Hazardous substance	CASRN	Regulatory synonyms	Statutory			Final RQ	
			RQ	Code†	RCRA waste Number	Category	Pounds (Kg)
Filter solids from the filtration of hexachlorocyclopentadiene in the production of chlordane.							
K035			1*	4	K035	X	1 (0.454)
Wastewater treatment sludges generated in the production of creosote.							
K036			1*	4	K036	X	1 (0.454)
Still bottoms from toluene reclamation distillation in the production of disulfoton.							
K037			1*	4	K037	X	1 (0.454)
Wastewater treatment sludges from the production of disulfoton.							
K038			1*	4	K038	A	10 (4.54)
Wastewater from the washing and stripping of phorate production.							
K039			1*	4	K039	A	10 (4.54)
Filter cake from the filtration of diethylphosphorodithioic acid in the production of phorate.							
K040			1*	4	K040	A	10 (4.54)
Wastewater treatment sludge from the production of phorate.							
K041			1*	4	K041	X	1 (0.454)
Wastewater treatment sludge from the production of toxaphene.							
K042			1*	4	K042	A	10 (4.54)
Heavy ends or distillation residues from the distillation of tetrachlorobenzene in the production of 2,4,5-T.							
K043			1*	4	K043	A	10 (4.54)
2,6-Dichlorophenol waste from the production of 2,4-D.							
K044			1*	4	K044	A	10 (4.54)
Wastewater treatment sludges from the manufacturing and processing of explosives.							
K045			1*	4	K045	A	10 (4.54)
Spent carbon from the treatment of wastewater containing explosives.							
K046			1*	4	K046	A	10 (4.54)
Wastewater treatment sludges from the manufacturing, formulation and loading of lead-based initiating compounds.							
K047			1*	4	K047	A	10 (4.54)
Pink/red water from TNT operations.							
K048			1*	4	K048	A	10 (4.54)
Dissolved air flotation (DAF) float from the petroleum refining industry.							
K049			1*	4	K049	A	10 (4.54)
Slop oil emulsion solids from the petroleum refining industry.							
K050			1*	4	K050	A	10 (4.54)
Heat exchanger bundle cleaning sludge from the petroleum refining industry.							
K051			1*	4	K051	A	10 (4.54)
API separator sludge from the petroleum refining industry.							
K052			1*	4	K052	A	10 (4.54)
Tank bottoms (leaded) from the petroleum refining industry.							
K060			1*	4	K060	X	1 (0.454)
Ammonia still lime sludge from coking operations.							
K061			1*	4	K061	A	10 (4.54)
Emission control dust/sludge from the primary production of steel in electric furnaces.							
K062			1*	4	K062	A	10 (4.54)
Spent pickle liquor generated by steel finishing operations of facilities within the iron and steel industry (SIC Codes 331 and 332).							
K064			1*	4	K064	A	10 (4.54)
Acid plant blowdown slurry/sludge resulting from thickening of blowdown slurry from primary copper production.							
K065			1*	4	K065	A	10 (4.54)

TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES—Continued

[Note: All Comments/Notes Are Located at the End of This Table]

Hazardous substance	CASRN	Regulatory synonyms	Statutory RQ	Statutory Code†	Statutory RCRA waste Number	Final RQ Category	Final RQ Pounds (Kg)
Surface impoundment solids contained in and dredged from surface impoundments at primary lead smelting facilities.							
K065			1*	4	K065	A	10 (4.54)
Sludge from treatment of process wastewater and/or acid plant blowdown from primary zinc production.							
K066			1*	4	K066	A	10 (4.54)
Emission control dust/sludge from secondary lead smelting.							
K069			1*	4	K069	X	1 (0.454)
Brine purification muds from the mercury cell process in chlorine production, where separately prepurified brine is not used.							
K071			1*	4	K071	X	1 (0.454)
Chlorinated hydrocarbon waste from the purification step of the diaphragm cell process using graphite anodes in chlorine production.							
K073			1*	4	K073	A	10 (4.54)
Distillation bottoms from aniline extraction.							
K083			1*	4	K083	B	100 (45.4)
Wastewater treatment sludges generated during the production of veterinary pharmaceuticals from arsenic or organo-arsenic compounds.							
K084			1*	4	K084	X	1 (0.454)
Distillation or fractionation column bottoms from the production of chlorobenzenes.							
K085			1*	4	K085	A	10 (4.54)
Solvent washes and sludges, caustic washes and sludges, or water washes and sludges from cleaning tubs and equipment used in the formulation of ink from pigments, driers, soaps, and stabilizers containing chromium and lead.							
K086			1*	4	K086	A	10 (4.54)
Decanter tank tar sludge from coking operations.							
K087			1*	4	K087	B	100 (45.4)
Spent potliners from primary aluminum reduction.							
K088			1*	4	K088		
Emission control dust or sludge from ferrochromiumsilicon production.							
K090			1*	4	K090		
Emission control dust or sludge from ferrochromium production.							
K091			1	4	K091		
Distillation light ends from the production of phthalic anhydride from ortho-xylene.							
K093			1*	4	K093	D	5000 (2270)
Distillation bottoms from the production of phthalic anhydride from ortho-xylene.							
K094			1*	4	K094	D	5000 (2270)
Distillation bottoms from the production of 1,1,1-trichloroethane.							
K095			1*	4	K095	B	100 (45.4)
Heavy ends from the heavy ends column from the production of 1,1,1-trichloroethane.							
K096			1*	4	K096	B	100 (45.4)
Vacuum stripper discharge from the chlordane chlorinator in the production of chlordane.							
K097			1*	4	K097	X	1 (0.454)
Untreated process wastewater from the production of toxaphene.							
K098			1*	4	K098	X	1 (0.454)
Untreated wastewater from the production of 2,4-D.							
K099			1*	4	K099	A	10 (4.54)
Waste leaching solution from acid leaching of emission control dust/sludge from secondary lead smelting.							
K100			1*	4	K100	A	10 (4.54)
Distillation tar residues from the distillation of aniline-based compounds in the production of veterinary pharmaceuticals from arsenic or organo-arsenic compounds.							
K101			1*	4	K101	X	1 (0.454)
Residue from the use of activated carbon for decolorization in the production of veterinary pharmaceuticals from arsenic or organo-arsenic compounds.							
K102			1*	4	K102	X	1 (0.454)
K103			1*	4	K1[illegible]	[illegible]	[illegible]

TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES—Continued

[Note: All Comments/Notes Are Located at the End of This Table]

Hazardous substance	CASRN	Regulatory synonyms	Statutory RQ	Statutory Code†	Statutory RCRA waste Number	Final RQ Category	Final RQ Pounds (Kg)
Process residues from aniline extraction from the production of aniline.							
K104 Combined wastewater streams generated from nitrobenzene/aniline production.			1*	4	K104	A	10 (4.54)
K105 Separated aqueous stream from the reactor product washing step in the production of chlorobenzenes.			1*	4	K105	A	10 (4.54)
K106 Wastewater treatment sludge from the mercury cell process in chlorine production.			1*	4	K106	X	1 (0.454)
K107 Column bottoms from product separation from the production of 1,1-dimethylhydrazine (UDMH) from carboxylic acid hydrazines.			10	4	K107	X	10 (4.54)
K108 Condensed column overheads from product separation and condensed reactor vent gases from the production of 1,1-dimethylhydrazine (UDMH) from carboxylic acid hydrazides.			10	4	K108	X	10 (4.54)
K109 Spent filter cartridges from product purification from the production of 1,1- dimethylhydrazine (UDMH) from carboxylic acid hydrazides.			10	4	K109	X	10 (4.54)
K110 Condensed column overheads from intermediate separation from the production of 1,1-dimethylhydrazine (UDMH) from carboxylic acid hydrazides.			10	4	K110	X	10 (4.54)
K111 Product washwaters from the production of dinitrotoluene via nitration of toluene.			1*	4	K111	A	10 (4.54)
K112 Reaction by-product water from the drying column in the production of toluenediamine via hydrogenation of dinitrotoluene.			1*	4	K112	A	10 (4.54)
K113 Condensed liquid light ends from the purification of toluenediamine in the production of toluenediamine via hydrogenation of dinitrotoluene.			1*	4	K113	A	10 (4.54)
K114 Vicinals from the purification of toluenediamine in the production of toluenediamine via hydrogenation of dinitrotoluene.			1*	4	K114	A	10 (4.54)
K115 Heavy ends from the purification of toluenediamine in the production of toluenediamine via hydrogenation of dinitrotoluene.			1*	4	K115	A	10 (4.54)
K116 Organic condensate from the solvent recovery column in the production of toluene diisocyanate via phosgenation of toluenediamine.			1*	4	K116	A	10 (4.54)
K117 Wastewater from the reaction vent gas scrubber in the production of ethylene bromide via bromination of ethene.			1*	4	K117	X	1 (0.454)
K118 Spent absorbent solids from purification of ethylene dibromide in the production of ethylene dibromide.			1*	4	K118	X	1 (0.454)
K123 Process wastewater (including supernates, filtrates, and washwaters) from the production of ethylenebisdithiocarbamic acid and its salts.			1*	4	K123	A	10 (4.54)
K124 Reactor vent scrubber water from the production of ethylenebisdithiocarbamic acid and its salts.			1*	4	K124	A	10 (4.54)
K125 Filtration, evaporation, and centrifugation solids from the production of ethylenebisdithiocarbamic acid and its salts.			1*	4	K125	A	10 (4.54)
K126 Baghouse dust and floor sweepings in milling and packaging operations from the production or formulation of ethylenebisdithiocarbamic acid and its salts.			1*	4	K126	A	10 (4.54)
K131 Wastewater from the reactor and spent sulfuric acid from the acid dryer in the production of methyl bromide.			100	4	K131	X	100 (45.4)
K132			1000	4	K132	[illegible]	1000 [illegible]

TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES—Continued

[Note: All Comments/Notes Are Located at the End of This Table]

Hazardous substance	CASRN	Regulatory synonyms	Statutory RQ	Statutory Code†	Statutory RCRA waste Number	Final RQ Category	Final RQ Pounds (Kg)
Spent absorbent and wastewater solids from the production of methyl bromide.							
K136			1*	4	K136	X	1 (0.454)
Still bottoms from the purification of ethylene dibromide in the production of ethylene dibromide via bromination of ethene.							
K141			1*	4	K141	X	1 (0.454)
Process residues from the recovery of coal tar, including, but not limited to, tar collecting sump residues from the production of coke by-products produced from coal. This listing does not include K087 (decanter tank tar sludge from coking operations.)							
K142			1*	4	K142	X	1 (0.454)
Tar storage tank residues from the production of coke from coal or from the recovery of coke by-products produced from coal.							
K143			1*	4	K143	X	1 (0.454)
Process residues from the recovery of light oil, including, but not limited to, those generated in stills, decanters, and wash oil recovery units from the recovery of coke by-products produced from coal.							
K144			1*	4	K144	X	1 (0.454)
Wastewater sump residues from light oil refining, including, but not limited to, intercepting or contamination sump sludges from the recovery of coke by-products produced from coal.							
K145			1*	4	K145	X	1 (0.454)
Residues from naphthalene collection and recovery operations from the recovery of coke by-products produced from coal.							
K147			1*	4	K147	X	1 (0.454)
Tar storage tank residues from coal tar refining.							
K148			1*	4	K148	X	1 (0.454)
Residues from coal tar distillation, including, but not limited to, still bottoms.							
K149			1*	4	K149	A	10 (4.54)
Distillation bottoms from the production of alpha- (or methyl-) chlorinated toluenes, ring-chlorinated toluenes, benzoyl chlorides, and compounds with mixtures of these functional groups. [This waste does not include still bottoms from the distillation of benzyl chloride.]							
K150			1*	4	K150	A	10 (4.54)
Organic residuals, excluding spent carbon adsorbent, from the spent chlorine gas and hydrochloric acid recovery processes associated with the production of alpha- (or methyl-) chlorinated toluenes, ring-chlorinated toluenes, benzoyl chlorides, and compounds with mixtures of these functional groups.							
K151			1*	4	K151	A	10 (4.54)
Wastewater treatment sludges, excluding neutralization and biological sludges, generated during the treatment of wastewaters from the production of alpha- (or methyl-) chlorinated toluenes, ring-chlorinated toluenes, benzoyl chlorides, and compounds with mixtures of these functional groups.							

† indicates the statutory source as defined by 1, 2, 3, and 4 below.
†† No reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is equal to or exceeds 100 micrometers (0.004 inches).
††† The RQ for asbestos is limited to friable forms only.
1—indicates that the statutory source for designation of this hazardous substance under CERCLA is CWA Section 311(b)(4).
2—indicates that the statutory source for designation of this hazardous substance under CERCLA is CWA Section 307(a).
3—indicates that the statutory source for designation of this hazardous substance under CERCLA is CAA Section 112.
4—indicates that the statutory source for designation of this hazardous substance under CERCLA is RCRA Section 3001.
1*—indicates that the 1-pound RQ is a CERCLA statutory RQ.
indicates that the RQ is subject to change when the assessment of potential carcinogenicity is completed.
The Agency may adjust the statutory RQ for this hazardous substance in a future rulemaking; until then the statutory RQ applies.
§—The adjusted RQs for radionuclides may be found in appendix B to this table.
**—indicates that no RQ is being assigned to the generic or broad class.

Appendix A to § 302.4—Sequential CAS Registry Number List of CERCLA Hazardous Substances

CASRN	Hazardous substance
50000	Formaldehyde.
50077	Azirino[2',3':3,4]pyrrolo[1,2-a]indole-4,7-dione,6-amino-8-[[(aminocarbonyl)oxy]methyl]-1,1a,2,8,8a, 8b-hexahydro-8a-methoxy-5-methyl-, [1aS-(1aalpha, 8beta,8aalpha,8balpha)]-
	Mitomycin C.
50180	Cyclophosphamide.
	2H-1,3,2-Oxazaphosphorin-2-amine, N,N-bis(2-chloroethyl)tetrahydro-, 2-oxide.
50293	Benzene, 1,1'-(2,2,2-trichloroethylidene)bis[4-chloro-.
	DDT.
	4,4'DDT.
50328	Benzo[a]pyrene.
	3,4-Benzopyrene.
50555	Reserpine.
	Yohimban-16-carboxylic acid,11,17-dimethoxy-18-[(3 ,4,5-trimethoxybenzoyl)oxy]-, methyl ester (3beta, 16beta,17alpha,18beta,20alpha)-.
51285	Phenol, 2,4-dinitro-.
	2,4-Dinitrophenol.
51434	Epinephrine.
	1,2-Benzenediol,4-[1-hydroxy-2-(methylamino)ethyl]-.
51796	Carbamic acid, ethyl ester.
	Ethyl carbamate (urethane).
52686	Trichlorfon.
52857	Famphur.
	Phosphorothioic acid, O,[4-[(dimethyl- amino) sulfonyl]phenyl]O,O-dimethyl ester.
53703	Dibenz[a,h]anthracene.
	Dibenzo[a,h]anthracene.
	1,2:5,6-Dibenzanthracene.
53963	Acetamide, N-9H-fluoren-2-yl-.
	2-Acetylaminofluorene.
54115	Nicotine, & salts.
	Pyridine, 3-(1-methyl-2-pyrrolidinyl)-, (S)-.
55185	Ethanamine, N-ethyl-N-nitroso-.
	N-Nitrosodiethylamine.
55630	Nitroglycerine.
	1,2,3-Propanetriol, trinitrate-.
55914	Diisopropylfluorophosphate.
	Phosphorofluoridic acid, bis(1-methyl- ethyl) ester.
56042	Methylthiouracil.
	4(1H)-Pyrimidinone, 2,3-dihydro-6-methyl-2-thioxo-.
56235	Carbon tetrachloride.
	Methane, tetrachloro-.
56382	Parathion.
	Phosphorothioic acid, O,O-diethyl O-(4-nitrophenyl) ester.
56495	Benz[j]aceanthrylene, 1,2-dihydro-3-methyl-.
	3-Methylcholanthrene.
56531	Diethylstilbestrol.
	Phenol, 4,4'-(1,2-diethyl-1,2-ethenediyl)bis-, (E).
56553	Benz[a]anthracene.
	Benzo[a]anthracene.
	1,2-Benzanthracene.
56724	Coumaphos.
57125	Cyanides (soluble salts and complexes) not otherwise specified.
57147	Hydrazine, 1,1-dimethyl-.
	1,1-Dimethylhydrazine.
57249	Strychnidin-10-one.
	Strychnine, & salts.
57749	Chlordane.
	Chlordane, alpha & gamma isomers.
	Chlordane, technical.
	4,7-Methano-1H-indene, 1,2,4,5,6,7,8,8-octachloro- 2,3,3a,4,7,7a-hexahydro-.
57976	1,2-Benzanthracene, 7,12-dimethyl-.
	7,12-Dimethylbenz[a]anthracene.
58899	Cyclohexane, 1,2,3,4,5,6-hexachloro-, (1alpha,2alpha,3beta,4alpha,5alpha, 6beta)-.
	gamma - BHC.
	Hexachlorocyclohexane (gamma isomer).
	Lindane.
58902	Phenol, 2,3,4,6-tetrachloro-.
	2,3,4,6-Tetrachlorophenol.
59507	p-Chloro-m-cresol.
	Phenol, 4-chloro-3-methyl-.
	4-Chloro-m-cresol.
60004	Ethylenediamine-tetraacetic acid (EDTA).
60117	Benzenamine, N,N-dimethyl-4-(phenylazo-).
	p-Dimethylaminoazobenzene.
60297	Ethane, 1,1'-oxybis-.
	Ethyl ether.
60344	Hydrazine, methyl-.
	Methyl hydrazine.
60515	Dimethoate.
	Phosphorodithioic acid, O,O-dimethyl S-[2(methylamino)-2-oxoethyl] ester.
60571	Dieldrin.
	2,7:3,6-Dimethanonaphth[2,3-b]oxirene, 3,4,5,6,9,9-hexachloro-1a,2, 2a,3,6,6a,7,7a-octahydro-, (1aalpha,2beta,2aalpha,3beta,6beta, 6aalpha,7beta, 7aalpha)-.
61825	Amitrole.
	1H-1,2,4-Triazol-3-amine.
62384	Mercury, (acetato-O)phenyl-.
	Phenylmercury acetate.
62442	Acetamide, N-(4-ethoxyphenyl)-.
	Phenacetin.
62500	Ethyl methanesulfonate.
	Methanesulfonic acid, ethyl ester.
62533	Aniline.
	Benzenamine.
62555	Ethanethioamide.
	Thioacetamide.
62566	Thiourea.
62737	Dichlorvos.
62748	Acetic acid, fluoro-, sodium salt.
	Fluoroacetic acid, sodium salt.
62759	Methanamine, N-methyl-N-nitroso-.
	N-Nitrosodimethylamine.
63252	Carbaryl.
64186	Formic acid.
64197	Acetic acid.
65850	Benzoic acid.
66751	Uracil mustard.
	2,4-(1H,3H)-Pyrimidinedione, 5-[bis(2-chloroethyl) amino]-.
67561	Methanol.
	Methyl alcohol.
67641	Acetone.
	2-Propanone.
67663	Chloroform.
	Methane, trichloro-.
67721	Ethane, hexachloro-.
	Hexachloroethane.
70257	Guanidine, N-methyl-N'-nitro-N-nitroso-.
	MNNG.
70304	Hexachlorophene.
	Phenol, 2,2'-methylenebis[3,4,6-tri- chloro-.
71363	n-Butyl alcohol.
	1-Butanol.

Appendix A to § 302.4—Sequential CAS Registry Number List of CERCLA Hazardous Substances—Continued

CASRN	Hazardous substance
71432	Benzene.
71556	Ethane, 1,1,1-trichloro-.
	Methyl chloroform.
	1,1,1-Trichloroethane.
72208	Endrin.
	Endrin, & metabolites.
	2,7:3,6-Dimethanonaphth[2,3-b]oxirene, 3,4,5,6,9,9-hexachloro-1a,2,2a,3,6,6a,7,7a-octa-hydro-, (1aalpha,2beta,2abeta,3alpha,6alpha, 6abeta,7beta,7aalpha)-.
72435	Benzene, 1,1'-(2,2,2-trichloroethylidene)bis[4-methoxy-.
	Methoxychlor.
72548	Benzene, 1,1'-(2,2-dichloroethylidene)bis[4-chloro-.
	DDD.
	TDE.
	4,4' DDD.
72559	DDE.
	4,4' DDE.
72571	Trypan blue.
	2,7-Naphthalenedisulfonic acid, 3,3'-[(3,3'-dimethyl-[1,1'-biphenyl]-4,4'-diyl)-bis(azo)]bis(5-amino-4-hydroxy)-tetrasodium salt.
74839	Methane, bromo-.
	Methyl bromide.
74873	Methane, chloro-.
	Methyl chloride.
74884	Methane, iodo-.
	Methyl iodide.
74895	Monomethylamine.
74908	Hydrocyanic acid.
	Hydrogen cyanide.
74931	Methanethiol.
	Methylmercaptan.
	Thiomethanol.
74953	Methane, dibromo-.
	Methylene bromide.
75003	Chloroethane.
75014	Ethene, chloro-.
	Vinyl chloride.
75047	Monoethylamine.
75058	Acetonitrile.
75070	Acetaldehyde.
	Ethanal.
75092	Methane, dichloro-.
	Methylene chloride.
75150	Carbon disulfide.
75207	Calcium carbide.
75218	Ethylene oxide.
	Oxirane.
75252	Bromoform.
	Methane, tribromo-.
75274	Dichlorobromomethane.
75343	Ethane, 1,1-dichloro-.
	Ethylidene dichloride.
	1,1-Dichloroethane.
75354	Ethene, 1,1-dichloro-.
	Vinylidene chloride.
	1,1-Dichloroethylene.
75365	Acetyl chloride.
75445	Carbonic dichloride.
	Phosgene.
75503	Trimethylamine.
75558	Aziridine, 2-methyl-.
	1,2-Propylenimine.
75569	Propylene oxide.
75605	Arsinic acid, dimethyl-.
	Cacodylic acid.
75649	tert-Butylamine.
75694	Methane, trichlorofluoro-.
	Trichloromonofluoromethane.
75718	Dichlorodifluoromethane.
	Methane, dichlorodifluoro-.
75865	Acetone cyanohydrin.
	Propanenitrile, 2-hydroxy-2-methyl-.
	2-Methyllactonitrile.
75876	Acetaldehyde, trichloro-.
	Chloral.
75990	2,2-Dichloropropionic acid.
76017	Ethane, pentachloro-.
	Pentachloroethane.
76448	Heptachlor.
	4,7-Methano-1H-indene, 1,4,5,6,7 (heptachloro-3a,4,7,7a-tetrahydro-.
77474	Hexachlorocyclopentadiene.
	1,3-Cyclopentadiene, 1,2,3,4,5,5-hexa- chlor.
77781	Dimethyl sulfate.
	Sulfuric acid, dimethyl ester.
78002	Plumbane, tetraethyl-.
	Tetraethyl lead.
78591	Isophorone.
78795	Isoprene.
78819	iso-Butylamine.
78831	Isobutyl alcohol.
	1-Propanol, 2-methyl-.
78875	Propane, 1,2-dichloro-.
	Propylene dichloride.
	1,2-Dichloropropane.
78886	2,3-Dichloropropene.
78933	Methyl ethyl ketone (MEK).
	2-Butanone.
78999	1,1-Dichloropropane.
79005	Ethane, 1,1,2-trichloro-.
	1,1,2-Trichloroethane.
79016	Ethene, trichloro-.
	Trichloroethene.
	Trichloroethylene-.
79061	Acrylamide.
	2-Propenamide.
79094	Propionic acid.
79107	Acrylic acid.
	2-Propenoic acid.
79196	Hydrazinecarbothioamide.
	Thiosemicarbazide.
79221	Carbonochloridic acid, methyl ester.
	Methyl chlorocarbonate.
	Methyl chloroformate.
79312	iso-Butyric acid.
79345	Ethane, 1,1,2,2-tetrachloro-.
	1,1,2,2-Tetrachloroethane.
79447	Carbamic chloride, dimethyl-.
	Dimethylcarbamoyl chloride.
79469	Propane, 2-nitro-.
	2-Nitropropane.
80159	alpha,alpha-Dimethylbenzylhydroperoxide.
	Hydroperoxide, 1-methyl-1-phenylethyl-.
80626	Methyl methacrylate.
	2-Propenoic acid, 2-methyl-, methyl ester.
81072	Saccharin and salts.
	1,2-Benzisothiazol-3(2H)-one, 1,1-dioxide.
81812	Warfarin, & salts, when present at concentrations greater than 0.3%.
	2H-1-Benzopyran-2-one, 4-hydroxy-3-(3-oxo-1-phenyl -butyl)-, & salts, when present at concentrations greater than 0.3%.
82688	Benzene, pentachloronitro-.
	Pentachloronitrobenzene (PCNB).
83329	Acenaphthene.

final rule will result in a net cost savings of approximately $500,000 annually, and does not result in any of the other effects that define a significant regulatory action. In this final rule, RQs for 44 of the 47 individual hazardous air pollutants and three of the 11 RCRA wastes are raised. In addition, as noted in Section II.C.1 of this preamble, EPA is assigning no RQ level to the five broad generic categories of hazardous air pollutants. The RQs of the cresols and xylenes categories and the five hazardous wastes with RQs based on the RQ for cresols are being lowered from previously adjusted levels. The estimated net effect of these changes will be to reduce by approximately 1,300 the number of reportable releases for these hazardous substances each year (see the economic analysis mentioned above). The estimated $500,000 net cost savings reflects only those effects of the RQ adjustments that are readily quantifiable in dollars and are associated with the release notification requirements under section 103 of CERCLA and section 304 of EPCRA (including the associated activities of recordkeeping, notification processing, monitoring, and response).

B. Regulatory Flexibility Act

The Regulatory Flexibility Act of 1980 requires that a Regulatory Flexibility Analysis be performed for all rules that are likely to have a "significant impact on a substantial number of small entities." If this criterion is met, the Agency must conduct a Regulatory Flexibility Analysis to examine ways its regulation could be modified to mitigate these adverse impacts. A Regulatory Flexibility Analysis is not necessary for this final rule, because the upper-bound total cost of compliance to small firms is negligible.[32] In fact, as noted in Section V.A. of today's preamble, the Agency anticipates that raising most of the statutory one-pound RQs for the hazardous air pollutants, as well as assigning no RQ to the five CAA categories in this rule, will result in a net cost savings. Therefore, EPA hereby certifies that today's final rule is not likely to have a significant impact on a substantial number of small entities. As a result, no Regulatory Flexibility Analysis is necessary.

C. Paperwork Reduction Act

The information collection requirements contained in this final rule have been approved by OMB under the provisions of the Paperwork Reduction Act, 44 U.S.C. 3501 et seq., and have been assigned OMB control number 2050–0046. The public reporting burden for the collection of information pursuant to CERCLA section 103 is estimated to take, on average, 4.1 hours per response. This estimate includes the determination whether a release requires a report to the National Response Center, the time required to make the call, and the time required to maintain a log of any calls made to government organizations.

Because the RQs for almost all of the substances included in today's final rule are being raised, the net reporting and recordkeeping burden associated with reporting releases of these substances under CERCLA section 103 is expected to decrease. As noted in the economic impact analysis supporting today's final rule, EPA estimates that the annual reporting and recordkeeping burdens associated with reports to the National Response Center will be reduced by more than 5,300 hours as a result of these RQ adjustments.

Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Chief, Information Policy Branch, Mail Code 2136, U.S. Environmental Protection Agency, 401 M Street, SW., Washington, DC 20460; and to the Office of Information and Regulatory Affairs, Office of Management and Budget, Washington, DC 20503, marked "Attention: Desk Officer for EPA."

D. Unfunded Mandates

Under section 202 of the Unfunded Mandates Reform Act of 1995, signed into law on March 22, 1995, EPA must prepare a statement to accompany any rule in which the estimated costs to State, local, or tribal governments in the aggregate, or to the private sector, will be $100 million or more in any one year. Under section 205 of this Act, EPA must select the most cost-effective and least-burdensome alternative that achieves the objective of the rule and that is consistent with statutory requirements. Section 203 of the Act requires EPA to establish a plan for informing and advising any small governments that may be significantly impacted by the rule.

EPA has determined that this final rule does not include a Federal mandate that may result in estimated costs of $100 million or more to either State, local, or tribal governments in the aggregate, or to the private sector.

List of Subjects

40 CFR Part 117

Environmental protection, Hazardous substances, Penalties, Reporting and recordkeeping requirements, Water pollution control.

40 CFR Part 302

Air pollution control, Chemicals, Emergency Planning and Community Right-to-Know Act, Extremely hazardous substances, Hazardous chemicals, Hazardous materials, Hazardous materials transportation, Hazardous substances, Hazardous wastes, Intergovernmental relations, Natural resources, Pesticides and pests, Reporting and recordkeeping requirements, Superfund, Waste treatment and disposal, Water pollution control, Water supply.

40 CFR Part 355

Air pollution control, Chemical accident prevention, Chemical emergency preparedness, Chemicals, Community emergency response plan, Community right-to-know, Contingency planning, Disaster assistance, Emergency Planning and Community Right-to-Know Act, Extremely hazardous substances, Hazardous substances, Intergovernmental relations, Natural resources, Penalties, Reportable quantity, Reporting and recordkeeping requirements, Superfund Amendments and Reauthorization Act, Threshold planning quantity, Water pollution control, Water supply.

Dated: May 23, 1995.

Carol M. Browner,

Administrator.

For the reasons set out in the preamble, Chapter I of title 40 of the Code of Federal Regulations is amended as follows:

PART 117—DETERMINATION OF REPORTABLE QUANTITIES FOR HAZARDOUS SUBSTANCES

1. The authority citation for part 117 continues to read as follows:

Authority: Secs. 311 and 501(a), Federal Water Pollution Control Act (33 U.S.C. 1251 *et seq.*), ("the Act") and Executive Order 11735, superseded by Executive Order 12777, 56 FR 54757.

2. Section 117.3 is amended by revising the entries in the "category" column and in the "RQ in pounds (kilograms)" column for "cresol" and "xylene (mixed)" in Table 117.3 from

Hazardous Air Pollutants and RCRA Hazardous Wastes, Volume VI, available for inspection at the CERCLA Docket Office, Crystal Gateway #1, 12th Floor, 1235 Jefferson Davis Highway, Arlington, VA 22202.

[32] See the Regulatory Impact Analysis of Reportable Quantity Adjustments Under Sections 102 and 103 of the Comprehensive Environmental Response, Compensation, and Liability Act, Volume I, March 1985, available for inspection at the CERCLA Docket Office, Crystal Gateway #1, 12th Floor, 1235 Jefferson Davis Highway, Arlington, VA 22202.

"C" to "B" and from "1,000 (454)" to "100 (45.4)," respectively, as set forth below:

§ 117.3 Determination of Reportable Quantities.

* * * * *

TABLE 117.3.—REPORTABLE QUANTITIES OF HAZARDOUS SUBSTANCES DESIGNATED PURSUANT TO SECTION 311 OF THE CLEAN WATER ACT

* * * * *

Material	Category	RQ in pounds (kilograms)
* * *	*	*
Cresol	B	100 (45.4)
* * *	*	*
Xylene (mixed).	B	100 (45.4)
* * *	*	*

* * * * *

PART 302—DESIGNATION, REPORTABLE QUANTITIES, AND NOTIFICATION

3. The authority citation for part 302 continues to read as follows:

Authority: 42 U.S.C. 9602, 9603, 9604; 33 U.S.C. 1321 and 1361.

4. Section 302.4 is amended by adding the following new entries to Table 302.4 and its Appendix A, and by adding footnotes "a" and "b" to Table 302.4 as set forth below:

§ 302.4 Designation of hazardous substances.

* * * * *

TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES

[NOTE: All Comments/Notes Are Located at the End of This Table]

Hazardous substance	CASRN	Regulatory synonyms	Statutory			Final RQ	
			RQ	Code†	RCRA waste No.	Category	Pounds (Kg)
*	*	*	*	*		*	*
Acetamide	60355		1*	3		B	100 (45
*	*	*	*	*		*	*
4-Aminobiophenyl	92671		1*	3		X	1 (0.4
*	*	*	*	*		*	*
o-Anisidine	90040		1*	3		B	100 (45
*	*	*	*	*		*	*
Benzene [a]							
*	*	*	*	*		*	*
Benzene, dimethyl-	1330207	Xylene, Xylene (mixed), Xylenes (isomers and mixture).	1000	1,3,4	U239	B	100 (45
Benzene,m-dimethyl-	108383	m-Xylene	1*	3		C	1000 (4
Benzene, o-dimethyl-	95476	o-Xylene	1*	3		C	1000 (4
Benzene, p-dimethyl-	106423	p-Xylene	1*	3		B	100 (45
*	*	*	*	*		*	*
Biphenyl	92524		1*	3		B	100 (45
*	*	*	*	*		*	*
1,3-Butadiene	106990		1*	3		A	10 (4.
*	*	*	*	*		*	*
Calcium cyanamide	156627		1*	3		C	1000 (4
*	*	*	*	*		*	*
Caprolactam	105602		1*	3		D	5000 (22
*	*	*	*	*		*	*
Carbonyl sulfide	463581		1*	3		B	100 (45
Catechol	120809		1*	3		B	100 (45
*	*	*	*	*		*	*
Chloramben	133904		1*	3		B	100 (45
*	*	*	*	*		*	*
Chloroacetic acid	79118		1*	3		B	100 (45
2-Chloroacetophenone	532274		1*	3		B	100 (45
*	*	*	*	*		*	*
Chloroprene	126998		1*	3		B	100 (45

TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES—Continued

[NOTE: All Comments/Notes Are Located at the End of This Table]

Hazardous substance	CASRN	Regulatory synonyms	Statutory			Final RQ	
			RQ	Code†	RCRA waste No.	Category	Pounds (Kg)
* * * * * * *							
Cobalt compounds	N.A.		1*	3			(**)
* * * * * * *							
Cresols (isomers and mixture).	1319773	Cresylic acid (isomers and mixture) Phenol, methyl.	1000	1,3,4	U052	B	100 (45.4)
m-Cresol	108394	m-Cresylic acid	1*	3		B	100 (45.4)
o-Cresol	95487	o-Cresylic acid	1*	3		B	100 (45.4)
p-Cresol	106445	p-Cresylic acid	1*	3		B	100 (45.4)
Cresylic acid (isomers and mixture).	1319773	Cresols (isomers and mixture) Phenol, methyl.	1000	1,3,4	U052	B	100 (45.4)
m-Cresylic acid	108394	m-Cresol	1*	3		B	100 (45.4)
o-Cresylic acid	95487	o-Cresol	1*	3		B	100 (45.4)
p-Cresylic acid	106445	p-Cresol	1*	3		B	100 (45.4)
* * * * * * *							
DDET [b]	3547044		1*	3		D	5000 (2270)
* * * * * * *							
Diazomethane	334883		1*	3		B	100 (45.4)
* * * * * * *							
Dibenzofuran	132649		1*	3		B	100 (45.4)
* * * * * * *							
Diethanolamine	111422		1*	3		B	100 (45.4)
* * * * * * *							
N,N-Diethylaniline	91667		1*	3		C	1000 (454)
* * * * * * *							
Diethyl sulfate	64675		1*	3		A	10 (4.54)
* * * * * * *							
N,N-Dimethylaniline	121697		1*	3		B	100 (45.4)
* * * * * * *							
Dimethylformamide	68122		1*	3		B	100 (45.4)
* * * * * * *							
1,2-Epoxybutane	106887		1*	3		B	100 (45.4)
* * * * * * *							
Ethylene glycol	107211		1*	3		D	5000 (2270)
* * * * * * *							
Fine mineral fibers [c]	N.A.		1*	3			(**)
* * * * * * *							
Glycol ethers [d]	N.A.		1*	3			(**)
* * * * * * *							
Hexamethylene-1,6-diisocyanate.	822060		1*	3		B	100 (45.4)
Hexamethylphosphoramide.	680319		1*	3		X	1 (0.454)
Hexane	110543		1*	3		D	5000 (2270)
* * * * * * *							
Hydroquinone	123319		1*	3		B	100 (45.4)
* * * * * * *							
Manganese Compounds	N.A.		1*	3			(**)

TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES—Continued

[NOTE: All Comments/Notes Are Located at the End of This Table]

Hazardous substance	CASRN	Regulatory synonyms	Statutory			Final RQ	
			RQ	Code†	RCRA waste No.	Category	Pounds (Kg
*	*	*	*	*		*	*
MDI	101688	Methylene diphenyl diisocyanate.	1*	3		D	5000 (22
*	*	*	*	*		*	*
4,4'-Methylenedianiline	101779		1*	3		A	10 (4
Methylene diphenyl diisocyanate.	101688	MDI	1*	3		D	5000 (2
*	*	*	*	*		*	*
Methyl tert-butyl ether	1634044		1*	3		C	1000 (
*	*	*	*	*		*	*
4-Nitrobiphenyl	92933		1*	3		A	10 (4
*	*	*	*	*		*	*
N-Nitrosomorpholine	59892		1*	3		X	1 (0.
*	*	*	*	*		*	*
Phenol, methyl-	1319773	Cresols (isomers and mixture) Cresylic acid (isomers and mixture).	1000	1,3,4	U052	B	100 (4
*	*	*	*	*		*	*
p-Phenylenediamine	106503		1*	3		D	5000 (2
*	*	*	*	*		*	*
Polycyclic Organic Matter[c].	N.A.		1*	3			
*	*	*	*	*		*	*
beta-Propiolactone	57578		1*	3		A	10 (4
*	*	*	*	*		*	*
Propionaldehyde	123386		1*	3		C	1000 (
*	*	*	*	*		*	*
Propoxur (Baygon)	114261		1*	3		B	100 (4
*	*	*	*	*		*	*
Styrene oxide	96093		1*	3		B	100 (4
*	*	*	*	*		*	*
Titanium tetrachloride	7550450		1*	3		C	1000 (
*	*	*	*	*		*	*
Trifluralin	1582098		1*	3		A	10 (4
*	*	*	*	*		*	*
2,2,4-Trimethylpentane	540841		1*	3		C	1000 (
*	*	*	*	*		*	*
Unlisted Hazardous Wastes Characteristics:. Characteristics of Toxicity:	N.A.		1*	4			
*	*	*	*	*		*	*
o-Cresol (D023)	N.A.		1*	4	D023	B	100 (4
m-Cresol (D024)	N.A.		1*	4	D024	B	100 (4
p-Cresol (D025)	N.A.		1*	4	D025	B	100 (4
Cresol (D026)	N.A.		1*	4	D026	B	100 (4
*	*	*	*	*		*	*
Vinyl bromide	593602		1*	3		B	100 (4

TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES—Continued

[NOTE: All Comments/Notes Are Located at the End of This Table]

Hazardous substance	CASRN	Regulatory synonyms	Statutory RQ	Statutory Code†	Statutory RCRA waste No.	Final RQ Category	Final RQ Pounds (Kg)
*	*	*	*	*	*	*	*
Xylene	1330207	Benzene, dimethyl-Xylene (mixed), Xylenes (isomers and mixture).	1000	1,3,4	U239	B	100 (45.4)
m-Xylene	108383	Benzene, m-dimethyl-	1*	3		C	1000 (454)
o-Xylene	95476	Benzene, o-dimethyl-	1*	3		C	1000 (454)
p-Xylene	106423	Benzene, p-dimethyl-	1*	3		B	100 (45.4)
Xylene (mixed)	1330207	Benzene, dimethyl-Xylene Xylenes (isomers and mixture).	1000	1,3,4	U239	B	100 (45.4)
Xylenes (isomers and mixture).	1330207	Benzene, dimethyl-Xylene Xylene (mixed).	1000	1,3,4	U239	B	100 (45.4)
F004			1*	4	F004	B	100(45.4)
The following spent non-halogenated solvents and the still bottoms from the recovery of these solvents:							
(a) Cresols/Cresylic acid.	1319773		1000	1,3,4	U052	B	100(45.4)
(b) Nitrobenzene	98953		1000	1,2,4	U169	C	1000(454)
*	*	*	*	*	*	*	*
F025			1*	4	F025	X	1(0.454)
Condensed light ends, spent filters and filter aids, and spent desiccant wastes from the production of certain chlorinated aliphatic hydrocarbons, by free radical catalyzed processes. These chlorinated aliphatic hydrocarbons are those having carbon chain lengths ranging from one to and including five, with varying amounts and positions of chlorine substitution							
*	*	*	*	*	*	*	*
F037			1*	4	F037	X	1(0.454)

TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES—Continued

[NOTE: All Comments/Notes Are Located at the End of This Table]

Hazardous substance	CASRN	Regulatory synonyms	Statutory			Final RQ	
			RQ	Code†	RCRA waste No.	Category	Pounds (Kg)
Petroleum refinery primary oil/water/solids separation sludge—Any sludge generated from the gravitational separation of oil/water/solids during the storage or treatment of process wastewaters from petroleum refineries. Such sludges include, but are not limited to, those generated in: oil/water/solids separators; tanks and impoundments; ditches and other conveyances; sumps; and stormwater units receiving dry weather flow. Sludge generated in stormwater units that do not receive dry weather flow, sludges generated from non-contact once-through cooling waters segregated for treatment from other process or oily cooling waters, sludges generated in aggressive biological treatment units as defined in §261.31(b)(2) (including sludges generated in one or more additional units after wastewaters have been treated in aggressive biological treatment units) and K051 wastes are not included in this listing							
F038			1*	4	F038	X	1(0.454)

TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES—Continued

[NOTE: All Comments/Notes Are Located at the End of This Table]

Hazardous substance	CASRN	Regulatory synonyms	Statutory RQ	Statutory Code†	Statutory RCRA waste No.	Final RQ Category	Final RQ Pounds (Kg)
Petroleum refinery secondary (emulsified) oil/water/solids separation sludge—Any sludge and/or float generated from the physical and/or chemical separation of oil/watersolids in process wastewaters and oily cooling wastewaters from petroleum refineries. Such wastes include, but are not limited to, all sludges and floats generated in: induced air flotation (IAF) units; tanks and impoundments, and all sludges generated in DAFunits. Sludges generated in stormwater units that do not receive dry weather flow, sludges generated from once-through non-contact cooling waters segregated for treatment from other process or oil cooling wastes, sludges and floats generated in aggressive biological treatment units as defined in §261.31(b)(2) (including sludges and floats generated in one or more additional units after wastewaters have been treated in aggressive biological treatment units) and F037, K048, and K051 wastes are not included in this listing							
*	*	*	*	*		*	*
K088			1*	4	K088	A	10 (4.54)
Spent potliners from primary aluminum reduction							
K090			1*	4	K090	A	10 (4.54)
Emission control dust or sludge from ferrochromiumsilicon production							
K091			1*	4	K091	A	10 (4.54)
Emission control dust or sludge from ferrochromium production							
*	*	*	*	*		*	*

†Indicates the statutory source as defined by 1, 2, 3, and 4 below.

1- Indicates that the statutory source for designation of this hazardous substance under CERCLA is CWA section 311(b)(4).
2- Indicates that the statutory source for designation of this hazardous substance under CERCLA is CWA section 307(a).

3- Indicates that the statutory source for designation of this hazardous substance under CERCLA is CAA section 112.
4- Indicates that the statutory source for designation of this hazardous substance under CERCLA is RCRA section 3001.
1* Indicates that 1-pound RQ is CERCLA is statutory RQ.

* * * * * * *

** Indicates that no RQ is being assigned to the generic or broad class.

[a] Benzene was already a CERCLA hazardous substance prior to the CAA Amendments of 1990 and received an adjusted 10-pound RQ based on potential carcinogenicity in an August 14, 1989, final rule (54 FR 33418). The CAA Amendments specify that "benzene (including benzene from gasoline)" is a hazardous air pollutant and , thus, a CERCLA hazardous substance.

[b] The CAA Amendments of 1990 list DDE (3547–04–4) as a CAA hazardous air pollutant. The CAS number, 3547–04–4, is for the chemical, p,p'-dichlorodiphenylethane. DDE or p,p'-dichlorodiphenyldichloroethylene, CAS number 72–55–9, is already listed in Table 302.4 with a final RQ of 1 pound. The substance identified by the CAS number 3547–04–4 has been evaluated and listed as DDE to be consistent with the CAA seciton 112 listing, as amended.

[c] Includes mineral fiber emissions from facilities manufacturing or processing glass, rock, or slag fibers (or other mineral derived fibers) of average diameter 1 micrometer or less.

[d] Includes mono- and di- ethers of ethylene glycol, diethylene glycol, and triethylene glycol R-(OCH2CH2)$_n$-OR' where
n=1, 2, or 3
R=alkyl or aryl groups
R'=R, H, or groups which, when removed, yield glycol ethers with the structure: R-(OCH2CH2)$_n$OH. Polymers are excluded from the glycol category.

[e] Includes organic compounds with more than one benzene ring, and which have a boiling point greater than or equal to 100 °C.

5. Section 302.4 is also amended by revising the following existing entries in Table 302.4 to add note "3" to the statutory code column and to add the following regulatory synonyms as set forth below. In addition, Appendix A to Table 302.4 is amended by revising the following entries as set forth below:

§ 302.4 Designation of hazardous substances.

* * * * *

TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES

[NOTE: All Comments/Notes Are Located at the End of This Table]

Hazardous substance	CASRN	Regulatory synonyms	Statutory			Final RQ	
			RQ	Code†	RCRA waste No.	Category	Pounds (Kg)
Acetaldehyde	75070	Ethanal	1000	1,3,4	U001	C	1000 (454)
*	*	*	*	*		*	*
Acetamide, N-9H-fluoren-2-yl-.	53963	2-Acetylaminofluorene	1*	3,4	U005	X	1 (0.454)
*	*	*	*	*		*	*
Acetic acid (2,4-dichlorophenoxy)-, salts & esters.	94757	2,4-D Acid, 2,4-D,salts and esters	100	1,3,4	U240	B	100 (45.4)
*	*	*	*	*		*	*
Acetonitrile	75058		1*	3,4	U003	D	5000 (2270)
Acetophenone	98862	Ethanone, 1-phenyl-	1*	3,4	U004	D	5000 (2270)
2-Acetylaminofluorene	53963	Acetamide, N-9H-fluoren-2-yl-.	1*	3,4	U005	X	1 (0.454)
*	*	*	*	*		*	*
Acrolein	107028	2-Propenal	1	1,2,3,4	P003	X	1 (0.454)
Acrylamide	79061	2-Propenamide	1*	3,4	U007	D	5000 (2270)
Acrylic acid	79107	2-Propenoic acid	1*	3,4	U008	D	5000 (2270)
Acrylonitrile	107131	2-Propenenitrile	100	1,2,3,4	U009	B	100 (45.4)
*	*	*	*	*		*	*
Allyl chloride	107051		1000	1,3		C	1000 (454)
*	*	*	*	*		*	*
Aniline	62533	Benzenamine	1000	1,3,4	U012	D	5000 (2270)
*	*	*	*	*		*	*
ANTIMONY AND COMPOUNDS.	N.A.	Antimony Compounds	1*	2,3			**
Antimony Compounds	N.A.	ANTIMONY AND COMPOUNDS.	1*	2,3			**
*	*	*	*	*		*	*
Aroclor 1016	12674112	Aroclors PCBs POLYCHLORINATED BIPHENYLS	10	1,2,3		X	1 (0.454)

TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES—Continued

[NOTE: All Comments/Notes Are Located at the End of This Table]

Hazardous substance	CASRN	Regulatory synonyms	Statutory RQ	Statutory Code†	Statutory RCRA waste No.	Final RQ Category	Final RQ Pounds (Kg)
Aroclor 1221	11104282	Aroclors PCBs POLYCHLORINATED BIPHENYLS	10	1,2,3		X	1 (0.454)
Aroclor 1232	11141165	 PCBs POLYCHLORINATED BIPHENYLS	10	1,2,3		X	1 (0.454)
Aroclor 1242	53469219	Aroclors PCBs POLYCHLORINATED BIPHENYLS	10	1,2,3		X	1 (0.454)
Aroclor 1248	12672296	Aroclors PCBs POLYCHLORINATED BIPHENYLS	10	1,2,3		X	1 (0.454)
Aroclor 1254	11097691	Aroclors PCBs POLYCHLORINATED BIPHENYLS	10	1,2,3		X	1 (0.454)
Aroclor 1260	11096825	Aroclors PCBs POLYCHLORINATED BIPHENYLS	10	1,2,3		X	1 (0.454)
Aroclors	1336363	PCBs POLYCHLORINATED BIPHENYLS	10	1,2,3		X	1 (0.454)
Aroclor 1016	12674112		10	1,2,3		X	1 (0.454)
Aroclor 1221	11104282		10	1,2,3		X	1 (0.454)
Aroclor 1232	11141165		10	1,2,3		X	1 (0.454)
Aroclor 1242	53469219		10	1,2,3		X	1 (0.454)
Aroclor 1248	12672296		10	1,2,3		X	1 (0.454)
Aroclor 1254	11097691		10	1,2,3		X	1 (0.454)
Aroclor 1260	11096825		10	1,2,3		X	1 (0.454)
*	*	*	*	*		*	*
ARSENIC AND COMPOUNDS.	N.A.	Arsenic Compounds (inorganic including arsine).	1*	2,3			**
Arsenic Compounds (inorganic including arsine).	N.A.	ARSENIC AND COMPOUNDS.	1*	2,3			**
*	*	*	*	*		*	*
Aziridine	151564	Ethyleneimine	1*	3,4	P054	X	1 (0.454)
Aziridine, 2-methyl-	75558	2-Methyl aziridine 1,2-Propylenemine.	1*	3,4	P067	X	1 (0.454)
*	*	*	*	*		*	*
Benzenamine	62533	Aniline	1000	1,3,4	U012	D	5000 (2270)
*	*	*	*	*		*	*
Benzenamine, N,N-dimethyl-4-(phenylazo-).	60117	Dimethyl aminoazobenzene.	1*	3,4	U093	A	10 (4.54)
Benzenamine, 2-methyl- .	95534	o-Toluidine	1*	3,4	U328	B	100 (45.4)
*	*	*	*	*		*	*
Benzenamine, 4,4′-methylenebis(2-chloro-.	101144	4,4′-Methylenebis(2-chloroaniline).	1*	3,4	U158	A	10 (4.54)
*	*	*	*	*		*	*
Benzeneacetic acid, 4-chloro-α-(4-chlorophenyl)-α-hydroxy-, ethyl ester.	510156	Chlorobenzilate	1*	3,4	U038	A	10 (4.54)
*	*	*	*	*		*	*
Benzene, chloro-	108907	Chlorobenzene	100	1,2,3,4	U037	B	100 (45.4)

TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES—Continued

[NOTE: All Comments/Notes Are Located at the End of This Table]

Hazardous substance	CASRN	Regulatory synonyms	Statutory RQ	Statutory Code†	Statutory RCRA waste No.	Final RQ Category	Final RQ Pounds (Kg)
Benzene, chloromethyl- ..	100447	Benzyl chloride	100	1,3,4	P028	B	100 (45.4)
Benzenediamine, ar-methyl-.	95807	Toluenediamine	1*	3,4	U221	A	10 (4.54)
	496720	2,4-Toluene diamine					
	823405						
	25376458						
1,2-Benzenedicarboxylic acid, dibutyl ester.	84742	n-Butyl phthalate Dibutyl phthalate Di-n-butyl phthalate	100	1,2,3,4	U069	A	10 (4.54)
1,2-Benzenedicarboxylic acid, dimethyl ester.	131113	Dimethyl phthalate	1*	2,3,4	U102	D	5000 (2270)
*	*	*	*	*		*	*
1,2-Benzenedicarboxylic acid, bis(2-ethylhexyl) ester.	117817	Bis(2-ethylhexyl)phthalate. DEHP Diethylhexyl phthalate	1*	2,3,4	U028	B	100 (45.4)
*	*	*	*	*		*	*
Benzene, 1,4-dichloro- ...	106467	p-Dichlorobenzene 1,4-Dichlorobenzene	100	1,2,3,4	U072	B	100 (45.4)
*	*	*	*	*		*	*
Benzene, 1,3-diisocyanatomethyl-.	91087	Toluene diisocyanate	1*	3,4	U223	B	100 (45.4)
	584849	2,4-Toluene diisocyanate					
	26471625						
*	*	*	*	*		*	*
Benzene, hexachloro-	118741	Hexachlorobenzene	1*	2,3,4	U127	A	10 (4.54)
*	*	*	*	*		*	*
Benzene, hydroxy-	108952	Phenol	1000	1,2,3,4	U188	C	1000 (454)
Benzene, methyl-	108883	Toluene	1000	1,2,3,4	U220	C	1000 (454)
Benzene, 1-methyl-2,4-dinitro-.	121142	2,4-Dinitrotoluene	1000	1,2,3,4	U105	A	10 (4.54)
*	*	*	*	*		*	*
Benzene, (1-methylethyl)-	98828	Cumene	1*	3,4	U055	D	5000 (2270)
Benzene, nitro-	98953	Nitrobenzene	1000	1,2,3,4	U169	C	1000 (454)
*	*	*	*	*		*	*
Benzene, pentachloronitro-.	82688	PCNB Pentachloronitrobenzene Quintobenzene	1*	3,4	U185	B	100 (45.4)
*	*	*	*	*		*	*
Benzene, 1,1'-(2,2,2-trichloroethylidene) bis[4-methoxy-.	72435	Methoxychlor	1	1,3,4	U247	X	1 (0.454)
Benzene, (trichloromethyl)-.	98077	Benzotrichloride	1*	3,4	U023	A	10 (4.54)
*	*	*	*	*		*	*
Benzidine	92875	[1,1'-Biphenyl]-4,4'-diamine.	1*	2,3,4	U021	X	1 (0.454)
*	*	*	*	*		*	*
p-Benzoquinone	106514	2,5-Cyclohexadiene-1,4-dione Quinone.	1*	3,4	U197	A	10 (4.54)
*	*	*	*	*		*	*
Benzotrichloride	98077	Benzene, (trichloromethyl)-.	1*	3,4	U023	A	10 (4.54)
*	*	*	*	*		*	*
Benzyl chloride	100447	Benzene, chloromethyl- .	100	1,3,4	P028	B	100 (45.4)

TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES—Continued

[NOTE: All Comments/Notes Are Located at the End of This Table]

Hazardous substance	CASRN	Regulatory synonyms	Statutory			Final RQ	
			RQ	Code†	RCRA waste No.	Category	Pounds (Kg)
*	*	*	*	*		*	*
BERYLLIUM AND COMPOUNDS.	N.A.	Beryllium Compounds	1*	2,3			(**)
Beryllium Compounds	N.A.	BERYLLIUM AND COMPOUNDS.	1*	2,3			(**)
*	*	*	*	*		*	*
γ-BHC	58899	Cyclohexane, 1,2,3,4,5,6-hexa chloro- (1α, 2α, 3β,4α,5α,6β)-.	1	1,2,3,4	U129	X	1 (0.454)
*	*	*	*	*		*	*
2-Butanone	78933	MEK	1*	3,4	U159	D	5000 (2270)
η-Butyl phthalate	84742	1,2-Benzenedicarboxylic acid, dibutyl ester. Dibutyl phthalate Di-n-butyl phthalate	100	1,2,3,4	U069	A	10 (4.54)
*	*	*	*	*		*	*
CADMIUM AND COMPOUNDS.	N.A.	Cadmium Compounds ...	1*	2,3			(**)
Cadmium Compounds	N.A.	CADMIUM AND COMPOUNDS.	1*	2,3			(**)
*	*	*	*	*		*	*
Camphene, octachloro- ..	8001352	Chlorinated camphene Toxaphene.	1	1,2,3,4	P123	X	1 (0.454)
*	*	*	*	*		*	*
Captan	133062	....	10	1,3		A	10 (4.54)
*	*	*	*	*		*	*
Carbamic acid, ethyl ester.	51796	Ethyl carbamate Urethane.	1*	3,4	U238	B	100 (45.4)
*	*	*	*	*		*	*
Carbamic chloride, dimethyl-.	79447	Dimethylcarbamoyl chloride.	1*	3,4	U097	X	1 (0.454)
*	*	*	*	*		*	*
Carbaryl	63252	....	100	1,3		B	100 (45.4)
*	*	*	*	*		*	*
Carbon disulfide	75150	....	5000	1,3,4	P022	B	100 (45.4)
*	*	*	*	*		*	*
Carbonic dichloride	75445	Phosgene	5000	1,3,4	P095	A	10 (4.54)
*	*	*	*	*		*	*
Carbon tetrachloride	56235	Methane, tetrachloro-	5000	1,2,3,4	U211	A	10 (4.54)
*	*	*	*	*		*	*
Chlordane	57749	Chlordane, alpha & gamma isomers. CHLORDANE (TECHNICAL MIXTURE AND METABOLITES) 4,7-Methano-1H-indene, 1,2,4,5,6,7,8,8-octachloro-2,3,3a,4,7,7a-hexahydro-.	1	1,2,3,4	U036	X	1 (0.454)

TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES—Continued

[NOTE: All Comments/Notes Are Located at the End of This Table]

Hazardous substance	CASRN	Regulatory synonyms	Statutory			Final RQ	
			RQ	Code†	RCRA waste No.	Category	Pounds (Kg)
•	•	•	•	•		•	•
Chlordane, alpha & gamma isomers.	57749	Chlordane; CHLORDANE (TECHNICAL MIXTURE AND METABOLITES) I4,7-Methano-1H-indene, 1,2,4,5,6,7,8,8-octachloro-2,3,3a,4,7,7a-hexahydro-.	1	1,2,3,4	U036	X	1 (0.454)
CHLORDANE (TECHNICAL MIXTURE AND METABOLITES).	57749	Chlordane, alpha & gamma isomers. Chlordane, alpha & gamma isomers 4,7-Methano-1H-indene, 1,2,4,5,6,7,8,8-octachloro-2,3,3a,4,7,7a-hexahydro-	1	1,2,3,4	U036	X	1 (0.454)
•	•	•	•	•		•	•
Chlorinated camphene	8001352	Camphene, octachloro-Toxaphene.	1	1,2,3,4	P123	X	1 (0.454)
•	•	•	•	•		•	•
Chlorine	7782505		10	1,3		A	10 (4.54)
•	•	•	•	•		•	•
Chlorobenzene	108907	Benzene, chloro-	100	1,2,3,4	U037	B	100 (45.4)
•	•	•	•	•		•	•
Chlorobenzilate	510156	Benzeneacetic acid, 4-chloro-α-(4-chlorophenyl)-α-hydroxy-, ethyl ester.	1*	3,4	U038	A	10 (4.54)
•	•	•	•	•		•	•
1-Chloro-2,3-epoxypropane.	106898	Epichlorohydrin Oxirane, (chloromethyl)-.	1000	1,3,4	U041	B	100 (45.4)
Chloroethane	75003	Ethyl chloride	1*	2,3		B	100 (45.4)
•	•	•	•	•		•	•
Chloroform	67663	Methane, trichloro-	5000	1,2,3,4	U044	A	10 (4.54)
Chloromethane	74873	Methane, chloro-Methyl chloride.	1*	2,3,4	U045	B	100 (45.4)
Chloromethyl methyl ether.	107302	Methane, chloromethoxy-.	1*	3,4	U046	A	10 (4.54)
•	•	•	•	•		•	•
CHROMIUM AND COMPOUNDS.	N.A.	Chromium Compounds	1*	2,3			(**)
Chromium Compounds	N.A.	CHROMIUM AND COMPOUNDS.	1*	2,3			(**)
•	•	•	•	•		•	•
Cumene	98828	Benzene, (1-methylethyl)-.	1*	3,4	U055	D	5000 (2270)
•	•	•	•	•		•	•
Cyanide Compounds	N.A.	CYANIDES	1*	2,3			(**)
CYANIDES	N.A.	Cyanide Compounds	1*	2,3			(**)
•	•	•	•	•		•	•
2,5-Cyclohexadiene-1,4-dione.	106514	p-Benzoquinone Quinone.	1*	3,4	U197	A	10 (4.54)

TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES—Continued

[NOTE: All Comments/Notes Are Located at the End of This Table]

Hazardous substance	CASRN	Regulatory synonyms	Statutory			Final RQ	
			RQ	Code†	RCRA waste No.	Category	Pounds (Kg)
*	*	*	*	*		*	*
Cyclohexane, 1,2,3,4,5,6-hexachloro-, (1α,2α,3β,4α,5α,6β)-.	58899	γ-BHC Hexachlorocyclohexane (gamma isomer) Lindane Lindane (all isomers).	1	1,2,3,4	U129	X	1 (0.454)
*	*	*	*	*		*	*
1,3-Cyclopentadiene, 1,2,3,4,5,5-hexachloro-.	77474	Hexachlorocyclopentadiene.	1	1,2,3,4	U130	A	10 (4.54)
*	*	*	*	*		*	*
2,4-D Acid	94757	Acetic acid, (2,4-dichlorophenoxy)-, salts & esters. 2,4-D, salts and esters	100	1,3,4	U240	B	100 (45.4)
*	*	*	*	*		*	*
2,4-D salts and esters	94757	Acetic acid, (2,4-dichlorophenoxy)-, salts & esters. 2,4-D Acid	100	1,3,4	U240	B	100 (45.4)
*	*	*	*	*		*	*
DDE	72559	4,4′-DDE	1*	2,3		X	1 (0.454)
4,4′-DDE	72559	DDE	1*	2,3		X	1 (0.454)
*	*	*	*	*		*	*
DEHP	117817	1,2-Benzenedicarboxylic acid, bis(2-ethyl-hexyl) ester. Bis(2-ethylhexyl)phthalate Diethylhexyl phthalate	1*	2,3,4	U028	B	100 (45.4)
*	*	*	*	*		*	*
1,2-Dibromo-3-chloropropane.	96128	Propane, 1,2-dibromo-3-chloro-.	1*	3,4	U066	X	1 (0.454)
Dibromoethane	106934	Ethane, 1,2-dibromo- Ethylene dibromide.	1000	1,3,4	U067	X	1 (0.454)
*	*	*	*	*		*	*
Dibutyl phthalate	84742	1,2-Benzenedicarboxylic acid, dibutyl ester. n-Butyl phthalate Di-n-butyl phthalate	100	1,2,3,4	U069	A	10 (4.54)
Di-n-butyl phthalate	84742	1,2-Benzenedicarboxylic acid, dibutyl ester. n-Butyl phthalate Dibutyl phthalate	100	1,2,3,4	U069	A	10 (4.54)
*	*	*	*	*		*	*
1,4-Dichlorobenzene	106467	Benzene, 1,4-dichloro- p-Dichlorobenzene	100	1,2,3,4	U072	B	100 (45.4)
*	*	*	*	*		*	*
p-Dichlorobenzene	106467	Benzene, 1,4-dichloro- 1,4-Dichlorobenzene	100	1,2,3,4	U072	B	100 (45.4)
*	*	*	*	*		*	*
3,3′-Dichlorobenzidine	91941	[1,1′-Biphenyl]-4,4′-diamine,3,3′-dichloro-.	1*	2,3,4	U073	X	1 (0.454)
*	*	*	*	*		*	*
1,1-Dichloroethane	75343	Ethane, 1,1-dichloro- Ethylidene dichloride	1*	2,3,4	U076	C	1000 (454)
1,2-Dichloroethane	107062	Ethane, 1,2-dichloro- Ethylene dichloride	5000	1,2,3,4	U077	B	100 (45.4)

TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES—Continued

[NOTE: All Comments/Notes Are Located at the End of This Table]

Hazardous substance	CASRN	Regulatory synonyms	Statutory			Final RQ	
			RQ	Code†	RCRA waste No.	Category	Pounds (K
1,1-Dichloroethylene	75354	Ethene, 1,1-dichloro- Vinylidene chloride	5000	1,2,3,4	U078	B	100 (
Dichloroethyl ether	111444	Bis(2-chloroethyl) ether Ethane, 1,1′-oxybis[2-chloro-	1*	2,3,4	U025	A	10 (
*	*	*	*	*		*	*
Dichloromethyl ether	542881	Bis(chloromethyl) ether Methane, oxybis(chloro-	1	3,4	P016	A	10 (
*	*	*	*	*		*	*
Dichloromethane	75092	Methane, dichoro- Methylene chloride	1	2,3,4	U080	C	1000
*	*	*	*	*		*	*
1,2-Dichloropropane	78875	Propane, 1,2-dichloro- Propylene dichloride	5000	1,2,3,4,	U083	C	1000
*	*	*	*	*		*	*
1,3-Dichloropropane	542756	1-Propene, 1,3-dichloro-	5000	1,2,3,4	U084	B	100 (
*	*	*	*	*		*	*
Dichlorvos	62737		10	1,3		A	10 (
*	*	*	*	*		*	*
1,4-Diethyleneoxide	123911	1,4-Dioxane 1,4-Diethylenedioxide	1	3,4	U108	B	100 (
*	*	*	*	*		*	*
1,4-Diethylenedioxide	123911	1,4-Dioxane 1,4-Diethyleneoxide	1	3,4	U108	B	100 (
*	*	*	*	*		*	*
Diethylhexyl phthalate	117817	1,2-Benzenedicarboxylic acid, bis(2-ethylhexyl) ester. Bis(2-ethylhexyl)phthalate DEHP	1	2,3,4	U028	B	100 (
*	*	*	*	*		*	*
3,3′-Dimethoxybenzidine	119904	[1,1′-Biphenyl]-4,4′-diamine,3,3′-dimethoxy-.	1	3,4	U091	B	100 (
*	*	*	*	*		*	*
Dimethyl aminoazobenzene.	60117	Benzenamine, N,N-dimethyl-4-(phenylazo-). P-Dimethylaminoazobenzene	1	3,4	U093	A	10 (
*	*	*	*	*		*	*
p-Dimethylaminoazobenzene.	60117	Benzenamine, N,N-dimethyl-4-(phenylazo-). Dimethyl aminoazobenzene	1	3,4	U093	A	10 (
*	*	*	*	*		*	*
3,3′-Dimethylbenzidine	119937	[1,1′-Biphenyl]-4,4′-diamine,3,3′-dimethyl-.	1	3,4	U095	A	10 (
*	*	*	*	*		*	*
Dimethylcarbamoyl chloride.	79447	Carbamic chloride, dimethyl-.	1	3,4	U097	X	1 (0

TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES—Continued

[NOTE: All Comments/Notes Are Located at the End of This Table]

Hazardous substance	CASRN	Regulatory synonyms	Statutory			Final RQ	
			RQ	Code†	RCRA waste No.	Category	Pounds (Kg)
*	*	*	*	*		*	*
,1-Dimethylhydrazine	57147	Hydrazine, 1,1-dimethyl-	1	3,4	U098	A	10 (4.54)
*	*	*	*	*		*	*
imethyl phthalate	131113	1,2-Benzenedicarboxylic acid, dimethyl ester.	1	2,3,4	U102	D	5000 (2270)
*	*	*	*	*		*	*
Dimethyl sulfate	77781	Sulfuric acid, dimethyl ester.	1	3,4	U103	B	100 (45.4)
*	*	*	*	*		*	*
4,6-Dinitro-o-cresol, and salts.	534521	Phenol, 2-methyl-4,6-dinitro-, & salts.	1	2,3,4	P047	A	10 (4.54)
*	*	*	*	*		*	*
2,4-Dinitrophenol	51285	Phenol, 2,4-dinitro-	1000	1,2,3,4,	P048	A	10 (4.54)
*	*	*	*	*		*	*
2,4-Dinitrotoluene	121142	Benzene, 1-methyl-2,4-dinitro-.	1000	1,2,3,4	U105	A	10 (4.54)
*	*	*	*	*		*	*
-Dioxane	123911	1,4-Diethyleneoxide 1,4-Diethiyenedioxide	1	3,4	U108	B	100 (45.4)
1,2-Diphenyl- .... hydrazine	122667	Hydrazine, 1,2-diphenyl-	1*	2,3,4	U109	A	10(4.54)
*	*	*	*	*		*	*
Epichlorohydrin	106898	1-Chloro-2,3-epoxypropane. Oxirane, (chloromethyl)-	1000	1,3,4	U041	B	100(45.4)
*	*	*	*	*		*	*
Ethanal	75070	Acetaldehyde	1000	1,3,4	U001	C	1000(454)
*	*	*	*	*		*	*
Ethane, 1,2-dibromo	106934	Dibromoethane .... Ethylene dibromide	1000	1,3,4	U067	X	1(0.454)
Ethane, 1,1-dichloro	75343	1,1-Dichloroethane .... Ethylidene dichloride	1*	2,3,4	U076	C	1000(454)
Ethane, 1,2-dichloro	107062	1,2-Dichloroethane .... Ethylene dichloride	5000	1,2,3,4	U077	B	100(45.4)
*	*	*	*	*		*	*
Ethane, hexachloro-	67721	Hexachloroethane	1*	2,3,4	U131	B	100(45.4)
*	*	*	*	*		*	*
Ethane, 1,1'-oxybis[2-chloro-.	111444	Bis(2-chloroethyl) ether .. Dichloroethyl ether	1*	2,3,4	U025	A	10(4.54)
*	*	*	*	*		*	*
Ethane, 1,1,2,2-tetrachloro-.	79345	1,1,2,2-Tetra- .... chloroethane	1*	2,3,4	U209	B	100(45.4)
*	*	*	*	*		*	*
Ethane, 1,1,1-trichloro- ...	71556	Methyl chloroform 1,1,1-Trichloroethane	1*	2,3,4	U226	C	1000(454)
Ehane, 1,1,2-trichloro-	79005	1,1,2-Trichloroethane	1*	2,3,4	U227	B	100(45.4)
*	*	*	*	*		*	*
Ethanone, 1-phenyl-	98862	Acetophenone	1*	3,4	U004	D	5000(2270)

TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES—Continued

[NOTE: All Comments/Notes Are Located at the End of This Table]

Hazardous substance	CASRN	Regulatory synonyms	Statutory RQ	Statutory Code†	Statutory RCRA waste No.	Final RQ Category	Final RQ Pounds (Kg)
*	*	*	*	*	*	*	*
Ethene, 1,1-dichloro-	75354	1,1-Dichloroethylene Vinylidene chloride	5000	1,2,3,4	U078	B	100(45.4)
*	*	*	*	*	*	*	*
Ethene, tetrachloro-	127184	Perchloroethylene Tetrachloroethene Tetrachloroethylene	1*	2,3,4	U210	B	100(45.4)
Ethene, trichloro-	79016	Trichloroethene Trichloroethylene	1000	1,2,3,4	U228	B	100(45.4)
Ethyl acrylate	140885	2-Propenoic acid, ethyl ester.	1*	3,4	U113	C	1000(454)
Ethylbenzene	100414		1000	1,2,3		C	1000(454)
Ethyl carbamate	51796	Carbamic acid, ethyl ester. Urethane	1*	3,4	U238	B	100(45.4)
Ethyl chloride	75003	Chloroethane	1*	2,3		B	100(45.4)
*	*	*	*	*	*	*	*
Ethylene dibromide	106934	Dibromoethane Ethane, 1,2-dibromo-	1000	1,3,4	U067	X	1(0.454)
Ethylene dichloride	107062	1,2-Dichloroethane Ethane, 1,2-dichloro-	5000	1,2,3,4	U077	B	100(45.4)
*	*	*	*	*	*	*	*
Ethyleneimine	151564	Aziridine	1*	3,4	P054	X	1(0.454)
Ethylene oxide	75218	Oxirane	1*	3,4	U115	A	10(4.54)
Ethylenethiourea	96457	2-Imidazolidinethione	1*	3,4	U116	A	10(4.54)
*	*	*	*	*	*	*	*
Ethylidene dichloride	75343	1,1-Dichloroethane Ethane, 1,1-dichloro-	*	2,3,4	U076	C	1000 (454)
*	*	*	*	*	*	*	*
Formaldehyde	50000		1000	1,3,4	U122	B	100 (45.4)
*	*	*	*	*	*	*	*
2,5-Furandione	108316	Maleic anhydride	5000	1,3,4	U147	D	5000 (2270)
*	*	*	*	*	*	*	*
Heptachlor	76448	4,7-Methano-1H-indene, 1,4,5,6,7,8,8-heptachloro-3a,4,7,7a-tetrahydro-	1	1,2,3,4	P059	X	1, (0.454)
*	*	*	*	*	*	*	*
Hexachlorobenzene	118741	Benzene, hexachloro-	1*	2,3,4	U127	A	10 (4.54)
Hexachlorobutadiene	87683	1,3-Butadiene 1,1,2,3,4,4-hexachloro-.	1*	2,3,4	U128	X	1 (0.454)
*	*	*	*	*	*	*	*
Hexachlorocyclohexane (gamma isomer).	58899	γ-BHC Chclohexane, 1,2,3,4,5,6-hexachloro-(1α,2α,3β,4α, 5α,6β)- Lindane Lindane (all isomers)	1	1,2,3,4	U129	X	1 (0.454)
Hexachlorocyclopentadiene.	77474	1,3-Cyclopentadiene, 1,2,3,4,5,5-hexachloro-.	1	1,2,3,4	U130	A	10 (4.54)
Hexachloroethane	67721	Ethane, hexachloro-	1*	2,3,4	U131	B	100 (45.4)
*	*	*	*	*	*	*	*
Hexone	108101	Methyl isobutyl ketone 4-Methyl-2-pentanone	1*	3,4	U161	D	5000 (2270)
Hydrazine	302012		1*	3,4	U133	X	1 (0.454)

TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES—Continued

[NOTE: All Comments/Notes Are Located at the End of This Table]

Hazardous substance	CASRN	Regulatory synonyms	Statutory			Final RQ	
			RQ	Code†	RCRA waste No.	Category	Pounds (Kg)
*	*	*	*	*		*	*
Hydrazine, 1,1-dimethyl- .	57147	1,1-Dimethylhydra- zine	1*	3,4	U098	A	10 (4.54)
*	*	*	*	*		*	*
Hydrazine, 1,2-diphenyl- .	122667	1,2-Diphenylhydra- zine	1*	2,3,4	U109	A	10 (4.54)
*	*	*	*	*		*	*
Hydrazine, methyl-	60344	Methyl hydrazine	1*	3,4	P068	A	10 (4.54)
*	*	*	*	*		*	*
Hydrochloric acid	7647010	Hydrogen chloride	5000	1,3		D	5000 (2270)
*	*	*	*	*		*	*
Hydrofluoric acid	7664393	Hydrogen fluoride	5000	1,3,4	U134	B	100 (45.4)
*	*	*	*	*		*	*
Hydrogen chloride	7647010	Hydrochloric acid	5000	1,3		D	5000 (2270)
*	*	*	*	*		*	*
Hydrogen fluoride	7664393	Hydrofluoric acid	5000	1,3,4	U134	B	100 (45.4)
Hydrogen phosphide	7803512	Phosphine	1*	3,4	P096	B	100 (45.4)
*	*	*	*	*		*	*
2-Imidazolidinethione	96457	Ethylenethiourea	1*	3,4	U116	A	10 (4.54)
*	*	*	*	*		*	*
Iodomethane	74884	Methane, iodo- Methyl iodide	1*	3,4	U138	B	100 (45.4)
1,3-Isobenzofurandione	85449	Phthalic anhydride	1*	3,4	U190	D	5000 (2270)
*	*	*	*	*		*	*
Isophorone	78591		1*	2,3		D	5000 (2270)
*	*	*	*	*		*	*
LEAD AND COMPOUNDS.	N.A.	Lead Compounds	1*	2,3			(*)
Lead Compounds	N.A.	LEAD AND COMPOUNDS.	1*	2,3			(**)
*	*	*	*	*		*	*
Lindane	58899	γ-BHC Cyclohexane, 1,2,3,4,5,6-hexachloro-, (1α,2α, 3β,4α,5α,6β)-, Hexachlorocyclohexane (gamma isomer) Lindane (all isomers)	1	1,2,3,4	U129	X	1 (0.454)
Lindane (all isomers)	58899	γ-BHC Cyclohexane, 1,2,3,4,5,6-hexachloro-, (1α,2α,3β,4α,5α,6β)-, Hexachlorocyclohexane (gamma isomer) Lindane	1	1,2,3,4	U129	X	1 (0.454)
*	*	*	*	*		*	*
Maleic anhydride	108316	2,5-Furandione	5000	1,3,4	U147	D	5000 (2270)
*	*	*	*	*		*	*
MEK	78933	2-Butanone Methyl ethyl ketone	1*	3,4	U159	D	5000 (2270)

TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES—Continued

[NOTE: All Comments/Notes Are Located at the End of This Table]

Hazardous substance	CASRN	Regulatory synonyms	Statutory			Final RQ	
			RQ	Code†	RCRA waste No.	Category	Pounds (Kg
•	•	•	•	•		•	•
MERCURY AND COMPOUNDS.	N.A.	Mercury Compounds	1*	2,3			
Mercury Compounds	N.A.	MERCURY AND COMPOUNDS.	1*	2,3			
•	•	•	•	•		•	•
Methanamine, N-methyl-N-nitroso-.	62759	N-Nitrosodimethylamine	1*	2,3,4	P082	A	10 (
Methane, bromo-	74839	Bromomethane Methyl bromide	1*	2,3,4	U029	C	1000 (
Methane, chloro-	74873	Chloromethane	1*	2,3,4	U045	B	100 (
Methane, chloromethoxy-	107302	Chloromethyl methyl ether.	1*	3,4	U046	A	10 (
•	•	•	•	•		•	•
Methane, dichloro-	75092	Methylene chloride Dichloromethane	1*	2,3,4	U080	C	1000 (
•	•	•	•	•		•	•
Methane, iodo-	74884	Iodomethane Methyl iodide	1*	3,4	U138	B	100 (
•	•	•	•	•		•	•
Methane, oxybis(chloro-	542881	Bis(chloromethyl)ether Dichloromethyl ether	1*	3,4	P016	A	10 (4
•	•	•	•	•		•	•
Methane, tetrachloro-	56235	Carbon tetrachloride	5000	1,2,3,4	U211	A	10 (
•	•	•	•	•		•	•
Methane, tribromo-	75252	Bromoform	1*	2,3,4	U225	B	100 (
Methane, trichloro-	67663	Chloroform	5000	1,2,3,4	U044	A	10 (
•	•	•	•	•		•	•
4,7-Methano-1H-indene, 1,4,5,6,7,8,8-heptachloro-3a,4,7,7a-tetrahydro-.	76448	Heptachlor	1*	1,2,3,4	P059	X	1 (0.
4,7-Methano-1H-indene, 1,2,4,5,6,7,8,8-octachloro-2,3,3a,4,7,7a-hexahydro-.	57749	Chlordane Chlordane, alpha & gamma isomers CHLORDANE (TECHNICAL MIXTURE AND METABOLITES)	1	1,2,3,4	U036	X	1 (0.
Methanol	67561	Methyl alcohol	1*	3,4	U154	D	5000 (2
•	•	•	•	•		•	•
Methoxychlor	72435	Benzene, 1,1'-(2,2,2-trichloroethyl-. idene)bis[4-methoxy-	1	1,3,4	U247	X	1 (0.
Methyl alcohol	67561	Methanol	1*	3,4	U154	D	5000 (2
2-Methyl aziridine	75558	Aziridine, 2-methyl- 1,2-Propylenimine	1*	3,4	P067	X	1 (0.
Methyl brominde	74839	Bromomethane Methane, bromo-	1*	2,3,4	U029	C	1000 (
•	•	•	•	•		•	•
Methyl chloride	74873	Chloromethane Methane, chloro-	1*	2,3,4	U045	B	100 (
•	•	•	•	•		•	•
Methyl chloroform	71556	Ethane, 1,1,1,-trichloro- 1,1,1-Trichloroethane	1*	2,3,4	U226	C	1000 (

TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES—Continued

[NOTE: All Comments/Notes Are Located at the End of This Table]

Hazardous substance	CASRN	Regulatory synonyms	Statutory			Final RQ	
			RQ	Code†	RCRA waste No.	Category	Pounds (Kg)
*	*	*	*	*		*	*
4,4'-Methylenebis(2-chloroaniline).	101144	Benzenamine, 4,4'-methylene-bis(2-chloro-.	1*	3,4	U158	A	10 (4.54)
*	*	*	*	*		*	*
Methylene chloride	75092	Dichloromethane Methane, dichloro-	1*	2,3,4	U080	C	1000 (454)
Methyl ethyl ketone	78933	2-Butanone MEK	1*	3,4	U159	D	5000 (2270)
*	*	*	*	*		*	*
Methyl hydrazine	60344	Hydrazine, methyl-	1*	3,4	P068	A	10 (4.54)
Methyl iodide	74884	Iodomethane Methane, iodo-	1*	3,4	U138	B	100 (45.4)
Methyl isobutyl ketone	108101	Hexone 4-Methyl-2-pentanone	1*	3,4	U161	D	5000 (2270)
*	*	*	*	*		*	*
Methyl methacrylate	80626	2-Propenoic acid, 2-methyl-, methyl ester.	5000	1,3,4	U162	C	1000 (454)
*	*	*	*	*		*	*
4-Methyl-2-pentanone	108101	Hexone Methyl isobutyl ketone	1*	3,4	U161	D	5000 (2270)
*	*	*	*	*		*	*
Naphthalene	91203		5000	1,2,3,4	U165	B	100 (45.4)
*	*	*	*	*		*	*
NICKEL AND COMPOUNDS.	N.A.	Nickel Compounds	1*	2,3			(**)
Nickel Compounds	N.A.	NICKEL AND COMPOUNDS.	1*	2,3			(**)
Nitrobenzene	98953	Benzene, nitro-	1000	1,2,3,4	U169	C	1000 (454)
*	*	*	*	*		*	*
p-Nitrophenol	100027	4-Nitrophenol Phenol, 4-nitro-	1000	1,2,3,4	U170	B	100 (45.4)
*	*	*	*	*		*	*
4-Nitrophenol	100027	p-Nitrophenol Phenol, 4-nitro-	1000	1,2,3,4	U170	B	100 (45.4)
*	*	*	*	*		*	*
2-Nitropropane	79469	Propane, 2-nitro	1*	3,4	U171	A	10 (4.54)
*	*	*	*	*		*	*
N-Nitrosodimethylamine	62759	Methanamine, N-methyl-N-nitroso-.	1*	2,3,4	P082	A	10 (4.54)
*	*	*	*	*		*	*
N-Nitroso-N-methylurea	684935	Urea, N-methyl-N-nitroso	1*	3,4	U177	X	1 (0.454)
*	*	*	*	*		*	*
1,2-Oxathiolane, 2,2-dioxide.	1120714	1,3-Propane sultone	1*	3,4	U193	A	10 (4.54)
*	*	*	*	*		*	*
Oxirane	75218	Ethylene oxide	1*	3,4	U115	A	10 (4.54)
*	*	*	*	*		*	*
Oxirane, (chloromethyl)-	106898	1-Chloro-2,3-epoxypropane. Epichlorohydrin	1000	1,3,4	U041	B	100 (45.4)

TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES—Continued

[NOTE: All Comments/Notes Are Located at the End of This Table]

Hazardous substance	CASRN	Regulatory synonyms	Statutory			Final RQ	
			RQ	Code†	RCRA waste No.	Category	Pounds (Kg
•	•	•	•	•		•	•
Parathion	56382	Phosphorothioic acid, O,O-diethyl O-(4-. nitrophenyl) ester	1	1,3,4	P089	A	10 (4
•	•	•	•	•		•	•
PCBs	1336363	Aroclors POLYCHLORINATED BIPHENYLS	10	1,2,3		X	1 (0.4
Aroclor 1016	12674112		10	1,2,3		X	1 (0.4
Aroclor 1221	11104282		10	1,2,3		X	1 (0.4
Aroclor 1232	11141165		10	1,2,3		X	1 (0.4
Aroclor 1242	53469219		10	1,2,3		X	1 (0.4
Aroclor 1248	12672296		10	1,2,3		X	1 (0.4
Aroclor 1254	11097691		10	1,2,3		X	1 (0.4
Aroclor 1260	11096825		10	1,2,3		X	1 (0.4
•	•	•	•	•		•	•
PCNB	82688	Benzene, pentachloronitro-. Pentachloronitro-benzene Quintobenzene.	1*	3,4	U185	B	100 (4
Pentachloronitrobenzene	82688	Benzene, pentachloronitro-. PCNB Quintobenzene.	1*	3,4	U185	B	100 (4
Pentachlorophenol	87865	Phenol, pentachloro-	10	1,2,3,4	U242	A	10 (4
•	•	•	•	•		•	•
Perchloroethylene	127184	Ethene, tetrachloro- Tetrachloroethene Tetrachloroethylene	1*	2,3,4	U210	B	100 (4
•	•	•	•	•		•	•
Phenol	108952	Benzene, hydroxy-	1000	1,2,3,4	U188	C	1000 (4
•	•	•	•	•		•	•
Phenol, 2,4-dinitro-	51285	2,4-Dinitrophenol	1000	1,2,3,4	P048	A	10 (4
•	•	•	•	•		•	•
Phenol, 2-methyl-4,6-dinitro-, & salts.	534521	4,6-Dinitro-o-cresol, and salts.	1*	2,3,4	P047	A	10 (4
•	•	•	•	•		•	•
Phenol, 4-nitro-	100027	p-Nitrophenol 4-Nitrophenol	1000	1,2,3,4	U170	B	100 (4
Phenol, pentachloro	87865	Pentachlorophenol	10	1,2,3,4	U242	A	10 (4
•	•	•	•	•		•	•
Phenol, 2,4,5-trichloro-	95954	2-4,5-Trichlorophenol	10	1,3,4	U230	A	10 (4
Phenol, 2,4,6-trichloro-	88062	2,4,6-Trichlorophenol	10	1,2,3,4	U231	A	10 (4
•	•	•	•	•		•	•
Phosgene	75445	Carbonic dichloride	5000	1,3,4	P095	A	10 (4
Phosphine	7803512	Hydrogen phosphide	1*	3,4	P096	B	100 (4
•	•	•	•	•		•	•
Phosphorothioic acid, O,O-diethyl O-(4-nitrophenyl) ester.	56382	Parathion	1	1,3,4	UP089	A	10 (4
•	•	•	•	•		•	•
Phosphorus	7723140		1	1,3		X	1 (0.4
•	•	•	•	•		•	•
Phthalic anhydride	85449	1,3-Isobenzofurandione	1*	3,4	U190	D	5000 (2

TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES—Continued

[NOTE: All Comments/Notes Are Located at the End of This Table]

Hazardous substance	CASRN	Regulatory synonyms	Statutory			Final RQ	
			RQ	Code†	RCRA waste No.	Category	Pounds (Kg)
*	*	*	*	*		*	*
POLYCHLORINATED BIPHENYLS.	1336363	Aroclors PCBs	10	1,2,3		X	1 (0.454)
Aroclor 1016	12674112		10	1,2,3		X	1 (0.454)
Aroclor 1221	11104282		10	1,2,3		X	1 (0.454)
Aroclor 1232	11141165		10	1,2,3		X	1 (0.454)
Aroclor 1242	53469219		10	1,2,3		X	1 (0.454)
Aroclor 1248	12672296		10	1,2,3		X	1 (0.454)
Aroclor 1254	11097691		10	1,2,3		X	1 (0.454)
Aroclor 1260	11096825		10	1,2,3		X	1 (0.454)
*	*	*	*	*		*	*
Propane, 1,2-dibromo-3-chloro.	96128	1,2-Dibromo-3-chloropropane.	1*	3,4	U066	X	1 (0.454)
Propane, 1,2-dichloro-	78875	1,2-Dichloropropane Propylene dichloride	5000	1,2,3,4	U083	C	1000 (454)
*	*	*	*	*		*	*
Propane, 2-nitro	79469	2-Nitropropane	1*	3,4	U171	A	10 (4.54)
1,3-Propane sultone	1120714	1,2-Oxathiolane, 2,2-dioxide.	1*	3,4	U193	A	10 (4.54)
*	*	*	*	*		*	*
2-Propenal	107028	Acrolein	1	1,2,3,4	P003	X	1 (0.454)
2-Propenamide	79061	Acrylamide	1*	3,4	U007	D	5000 (2270)
*	*	*	*	*		*	*
1-Propene, 1,3-dichloro-	542756	1,3-Dichloropropene	5000	1,2,3,4	U084	B	100 (45.4)
2-Propenenitrile	107131	Acrylonitrile	100	1,2,3,4	U009	B	100 (4.54)
*	*	*	*	*		*	*
2-Propenoic acid	79107	Acrylic acid	1*	3,4	U008	D	5000 (2270)
2-Propenoic acid, ethyl ester.	140885	Ethyl acrylate	1*	3,4	U113	C	1000 (454)
*	*	*	*	*		*	*
2-Propenoic acid, 2-methyl-, methyl ester.	80626	Methyl Nethacrylate	5000	1,3,4	U162	C	1000 (454)
*	*	*	*	*		*	*
Propylene dichloride	78875	1,2-Dichloropropane Propane, 1,2-dichloro-.	5000	1,2,3,4	U083	C	1000 (454)
Propylene oxide	75569		5000	1,3		B	100 (45.4)
1,2-Propylenimine	75558	Aziridine, 2-methyl- 2-Methyl aziridine	1*	3,4	P067	X	1 (0.454)
*	*	*	*	*		*	*
Quinoline	91225		1000	1,3		D	5000 (2270)
Quinone	106514	p-Benzoquinone 2,5-Cyclohexadiene-1,4-dione.	1*	3,4	U197	A	10 (4.54)
Quintobenzene	82688	Benzene, pentachloronitro. PCNB Pentachloronitrobenzene.	1*	3,4	U185	B	100(45.4)
Radionuclides (including radon).	N.A.		1*	3			(§)
*	*	*	*	*		*	*
SELENIUM AND COMPOUNDS.	N.A.	Selenium Compounds	1*	2,3			(**)
Selenium Compounds	N.A.	SELENIUM COMPOUNDS.	1*	2,3			(**)
*	*	*	*	*		*	*
Styrene	100425		1000	1,3		C	1000(454)

TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES—Continued

[NOTE: All Comments/Notes Are Located at the End of This Table]

Hazardous substance	CASRN	Regulatory synonyms	Statutory			Final RQ	
			RQ	Code†	RCRA waste No.	Category	Pounds (Kg)
•	•	•	•	•		•	•
Sulfuric acid, dimethyl ester.	77781	Dimethyl sulfate	1*	3,4	U103	B	100(45.4
•	•	•	•	•		•	•
TCDD	1746016	2,3,7,8,-Tetrachlorodibenzo-p-dioxin.	1*	2,3		X	1(0.454
•	•	•	•	•		•	•
2,3,7,8-Tetrachlorodibenzo-p-dioxin.	1746016	TCDD	1*	2,3		X	1(0.454
•	•	•	•	•		•	•
1,1,2,2,-Tetrachloroethane.	79345	Ethane, 1,1,2,2,-tetrachloro-.	1*	2,3,4	U209	B	100(45.4
Tetrachloroethene	127184	Ethene, tetrachloro- Perchloroethylene Tetrachloroethylene	1*	2,3,4	U210	B	100(45.4
Tetrachloroethylene	127184	Ethene, tetrachyloro Perchloroethylene Tetrachloroethlene	1*	2,3,4	U210	B	100(45.4
Toluene	108883	Benzene, methyl	1000	1,2,3,4	U220	C	1000(454
Toluenediamine	95807 496720 823405 25376458	Benzenediamine, ar-methyl-. 2,4-Toluene diamine	1*	3,4	U221	A	10(4.54
2,4-Toluene diamine	95807 496710 823405 25376458	Benzenediamine, ar-methyl-. Toluenediamine	1*	3,4	U221	A	10(4.54
Toluene diisocyanate	91087 5848349 26471625	Benzene, 1,3-diisocyanato methyl-. 2,4-Toluene diisocyanate-.	1*	3,4	U223	B	100 (45.4
2,4-Toluene diisocyanate	91087 5848349 26471625	Benzene, 1,3-diisocyanatomethyl-. Toluene diisocyanate.	1*	3,4	U223	B	100 (45.4
o-Toluidine	95534	Benzenamine, 2-methyl-	1*	3,4	U328	B	100(45.4
•	•	•	•	•		•	•
Toxaphene	8001352	Camphene, octachloro- Chlorinated camphene	1*	1,2,3,4	P123	X	1 (0.454
•	•	•	•	•		•	•
1,2,4-Trichlorobenzene	120821		1*	2,3		B	100 (45.4
1,1,1-Trichloroethane	71556	Ethane, 1,1,1-trichloro- Methyl. chloroform	1*	2,3,4	U226	C	1000 (454
1,1,2-Trichloroethane	79005	Ethane, 1,1,2-trichloro	1*	2,3,4	U227	B	100 (45.4
Trichloroethene	79016	Ethene, trichloro- Trichloroethylene.	1000	1,2,3,4	U228	B	100 (45.4
Trichloroethylene	79016	Ethene, trichloro Trichloroethene.	1000	1,2,3,4	U228	B	100 (45.4
•	•	•	•	•		•	•
2,4,5-Trichlorophenol	95954	Phenol, 2,4,5-trichloro-	10	1,3,4	U230	A	10 (4.54
2,4,6-Trichlorophenol	88062	Phenol, 2,4,6-trichloro-	10	1,2,3,4	U231	A	10 (4.54
•	•	•	•	•		•	•
Triethylamine	121448		5000	1,3		D	5000 (2270
•	•	•	•	•		•	•
Urea, N-menthyl-N-nitroso.	684935	N-Nitroso-N-methylurea	1*	3,4	U177	X	1 (0.454
Urethane	51796	Carbamic acid, ethyl ester. Ethyl carbamate	1*	3,4	U238	B	100 (45.4

TABLE 302.4—LIST OF HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES—Continued

[NOTE: All Comments/Notes Are Located at the End of This Table]

Hazardous substance	CASRN	Regulatory synonyms	Statutory			Final RQ	
			RQ	Code†	RCRA waste No.	Category	Pounds (Kg)
*	*	*	*	*		*	*
Vinyl acetate	108054	Vinyl acetate monomer	1000	1,3		D	5000 (2270)
Vinyl acetate monomer	108054	Vinyl acetate	1000	1,3	D		5000 (2270)
*	*	*	*	*		*	*
Vinylidence chloride	75354	1,1-Dichloroethylene Ethene, 1,1-dichloro-	5000	1,2,3,4	U078	B	100 (45.4)
*	*	*	*	*		*	*

† Indicates the statutory source as defined by 1,2,3, and 4 below.

1- Indicates that the statutory source for designation of this hazardous substance under CERCLA is CWA section 311(b)(4).
2- Indicates that the statutory source for designation of this hazardous substance under CERCLA is CWA section 307(a).
3- Indicates that the statutory source for designation of this hazardous substance under CERCLA is GAA section 112.
4- Indicates that the statutory source for designation of this hazardous substance under CERCLA is RCRA section 3001.
1 Indicates that the 1-pound RQ is a CERCLA statutory RQ.

** Indicates that no RQ is being assigned to the generic or broad class.

APPENDIX A TO § 302.4.—SEQUENTIAL CAS REGISTRY NUMBER LIST OF CERCLA HAZARDOUS SUBSTANCES

CASRN	Hazardous substance
*	* * * * * *
51796	Carbamic acid, ethyl ester Ethyl carbamate Urethane.
*	* * * * * *
57749	Chlordane Chlordane, alpha & gamma isomers CHLORDANE (TECHNICAL MIXTURE AND METABOLITES) 4,7-Methano-1H-indene, 1,2,4,5,6,7,8,8- octachloro-2,3,3a,4,7,7a-hexahydro-.
*	* * * * * *
58899	γ-BHC Cyclohexane, 1,2,3,4,5,6-hexachloro (1α,2α,3β,4α,5α,6β)- Hexachlorocyclohexane (gamma isomer) Lindane Lindane (all isomers).
*	* * * * * *
60117	Benzenamine, N,N-dimethyl-4-(phenylazo-) Dimethyl aminoazobenzene p-Dimethylaminoazobenzene.
*	* * * * * *
72559	DDE 4,4'-DDE.
*	* * * * * *
74839	Bromomethane Methane, bromo- Methyl bromide.
*	* * * * * *
74873	Chloromethane Methane, chloro- Methyl chloride.
*	* * * * * *
74884	Iodomethane Methane, iodo- Methyl iodide.
*	* * * * * *
75003	Chloroethane Ethyl chloride.
*	* * * * * *
75092	Dichloromethane Methane, dichloro- Methylene chloride.
*	* * * * * *
75252	Bromoform Methane, tribromo-.
*	* * * * * *
75558	Aziridine, 2-methyl- 2-Methyl aziridine 1,2-Propylenimine.
*	* * * * * *
78933	2-Butanone MEK Methyl ethyl ketone.
*	* * * * * *
82688	Benzene, pentachloronitro- PCNB Pentachloronitrobenzene Quintobenzene.

APPENDIX A TO § 302.4.—SEQUENTIAL CAS REGISTRY NUMBER LIST OF CERCLA HAZARDOUS SUBSTANCES—Continued

CASRN	Hazardous substance
* * *	* * * *
91087	Benzene, 1,3-diisocyanatomethyl- Toluene diisocyanate 2,4-Toluene diisocyanate.
* * *	* * * *
92875	Benzidine [1,1'-Biphenyl]-4,4'diamine.
* * *	* * * *
94757	Acetic acid (2,4-dichlorophenoxy)-, salts & esters 2,4-D Acid 2,4-D, salts and esters.
* * *	* * * *
95807	Benzenediamine, ar-methyl- Toluenediamine 2,4-Toluene diamine.
* * *	* * * *
98828	Benzene, (1-methylethyl)- Cumene.
* * *	* * * *
106514	p-Benzoquinone 2,5-Cyclohexadiene-1,4-dione Quinone.
* * *	* * * *
106898	1-Chloro-2,3-epoxypropane Epichlorohydrin Oxirane, (chloromethyl)-.
* * *	* * * *
106934	Dibromoethane Ethane, 1,2-dibromo- Ethylene, dibromide.
* * *	* * * *
117817	1,2-Benzenedicarboxylic acid, bis(2-ethylhexyl) ester Bis(2-ethylhexyl)phthalate DEHP Diethylhexyl phthalate.
* * *	* * * *
123911	1,4-Diethyleneoxide 1,4-Diethylenedioxide 1,4-Dioxane.
* * *	* * * *
131113	Dimethyl phthalate 1,2-Benzenedicarboxylic acid, dimethyl ester.
* * *	* * * *
151564	Aziridine Ethyleneimine.
* * *	* * * *
496720	Benzenediamine, ar-methyl- Toluenediamine 2,4-Toluene diamine.
* * *	* * * *
510156	Benzeneacetic acid, 4-chloro-α- (4-chlorophenyl)-α-hydroxy-, ethyl ester Chlorobenzilate.
* * *	* * * *
534521	4,6-Dinitro-o-cresol, and salts Phenol, 2-methyl-4,6-dinitro-, & salts.
* * *	* * * *
542881	Bis(chloromethyl)ether Dichloromethyl ether Methane, oxybis(chloro)-.
* * *	* * * *
584849	Benzene, 1,3-diisocyanatomethyl- Toluene diisocyanate 2,4-Toluene diisocyanate.
* * *	* * * *
823405	Benzenediamine, ar-methyl- Toluenediamine 2,4-Toluene diamine.
* * *	* * * *
1336363	Aroclors PCBs POLYCHLORINATED BIPHENYLS.
* * *	* * * *
1746016	TCDD 2,3,7,8-Tetrachlorodibenzo-p-dioxin.
* * *	* * * *
7803512	Hydrogen phosphide Phosphine.
* * *	* * * *
8001352	Camphene, octachloro- Chlorinated camphene Toxaphene.
* * *	* * * *
11096825	Aroclor 1260 Aroclors PCBs POLYCHLORINATED BIPHENYLS.
* * *	* * * *
11097691	Aroclor 1254 Aroclors PCBs POLYCHLORINATED BIPHENYLS.

APPENDIX A TO § 302.4.—SEQUENTIAL CAS REGISTRY NUMBER LIST OF CERCLA HAZARDOUS SUBSTANCES—Continued

CASRN	Hazardous substance
* * *	* * * *
11104282	Aroclor 1221 Aroclors PCBs POLYCHLORINATED BIPHENYLS.
* * *	* * * *
11141165	Aroclor 1232 Aroclors PCBs POLYCHLORINATED BIPHENYLS.
* * *	* * * *
12672296	Aroclor 1248 Aroclors PCBs POLYCHLORINATED BIPHENYLS.
* * *	* * * *
12674112	Aroclor 1016 Aroclors PCBs POLYCHLORINATED BIPHENYLS.
* * *	* * * *
25376458	Benzenediamine, ar-methyl- Toluenediamine 2,4-Toluene diamine.
* * *	* * * *
26471625	Benzene, 1,3-diisocyanatomethyl- Toluene diisocyanate 2,4-Toluene diisocyanate.
* * *	* * * *
53469219	Aroclor 1242 Aroclors PCBs POLYCHLORINATED BIPHENYLS.
* * *	* * * *

PART 355—EMERGENCY PLANNING AND NOTIFICATION

6. The authority citation for part 355 continues to read as follows:

Authority: 42 U.S.C. 11002, 11004, and 11048.

7. Part 355 is amended by revising the following entries in Appendices A and B, to read as set forth below:

* * * * *

APPENDIX A TO PART 355.—THE LIST OF EXTREMELY HAZARDOUS SUBSTANCES AND THEIR THRESHOLD PLANNING QUANTITIES

[Alphabetical order]

CAS No.	Chemical name	Notes	Reportable quantity* (pounds)	Threshold planning quantity (pounds)
* * *	* * * *			
79–11–8	Chloroacetic Acid		100	100/10,000
* * *	* * * *			
95–48–7	Cresol, o-		100	1,000/10,000
* * *	* * * *			
123–31–9	Hydroquinone	l	100	500/10,000
* * *	* * * *			
57–57–8	Propiolactone, Beta-		10	500
* * *	* * * *			
7550–45–0	Titanium Tetrachloride		1,000	100
* * *	* * * *			

*Only the statutory or final RQ is shown. For more information, see 40 CFR table 302.4.

Notes:

* * * * * * *

Chemicals on the original list that do not meet toxicity criteria but because of their high production volume and recognized toxicity are considered chemicals of concern ("Other chemicals").

* * * * * * *

APPENDIX B TO PART 355.—THE LIST OF EXTREMELY HAZARDOUS SUBSTANCES AND THEIR THRESHOLD PLANNING QUANTITIES

[CAS number order]

CAS No.	Chemical name	Notes	Reportable quantity* (pounds)	Threshold planning quantity (pounds)
*	*	*	*	*
57-57-8	Propiolactone, Beta-		10	500
*	*	*	*	*
79-11-8	Chloroacetic Acid		100	100/10,000
*	*	*	*	*
95-48-7	Cresol, o-		100	1,000/10,000
*	*	*	*	*
123-31-9	Hydroquinone	l	100	500/10,000
*	*	*	*	*
7550-45-0	Titanium Tetrachloride		1,000	100
*	*	*	*	*

*Only the statutory or final RQ is shown. For more information, see 40 CFR table 302.4.

Notes:

* * * * * * *

l Chemicals on the original list that do not meet toxicity criteria but because of their high production volume and recognized toxicity are considered chemicals of concern ("Other chemicals").

* * * * * * *

[FR Doc. 95-13787 Filed 6-9-95; 8:45 am]

BILLING CODE 6560-50-P

EXHIBIT F

Pink Copy

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

DEC 13 1985

OFFICE OF
SOLID WASTE AND EMERGENCY RESPONSE

SUBJECT: RCRA/Superfund Hotline Status Report - October 1985

FROM: Carolyn Barley, Project Officer Carolyn Barley
Office of Solid Waste (382-2217)

Barbara Hostage, Project Officer Barbara Hostage
Office of Emergency and Remedial Response (382-2198)

TO: See addressees

I. ACTIVITIES

A. The Hotline responded to 8,920 questions and requests for documents in October.

B. Betty Jean Perkins and Alfred Ward have joined the Hotline as document clerks. They will provide support for the Hotline information management system and assist the RCRA Docket staff.

C. On October 3 and 4, Hotline staff attended the Science Advisory Board meeting to review the Office of Waste Program Enforcement's draft document "RCRA Ground-Water Monitoring Technical Enforcement Guidance Document."

D. On October 8, Dexter Hinckley, Office of Solid Waste, briefed the Hotline on the mining waste exclusion reinterpretation published in the October 2, 1985, Federal Register (50 FR 40292).

E. On October 9, Paul Desrosiers, Office of Research and Development, briefed the Hotline on EPA's Dioxin Strategy.

F. On October 10, Denise Wright and Betty Jean Perkins of the Hotline met with EPA librarian Brigid Rapp and Loretta Marzetti, Chief of the Information Services Branch, to discuss options for reorganizing the Hotline information management system.

G. On October 15, Mike Kalinoski, Office of Toxic Substances, briefed the Hotline on tank testing methods for the underground storage tank program and the status of EPA's tank testing survey.

H. On October 16, a representative of the Hazardous Site Control Division briefed the Hotline on the Superfund Record of Decision (ROD) process.

I. On October 17, Bill Rusin met with Robert Root, Washington Information Center, to discuss design of the Hotline information database using the IBM PC/AT and dBase III.

(a) Is manifesting required at all in this scenario? If so, at what point?
(b) Must the final disposal site be a RCRA permitted disposal facility?
(c) If the small quantity generators generated between 100-1000 kg/month, how wou
the scenario be affected?

(a) No manifesting is required in this scenario. The hazardous waste itself is excluded from regulation under Parts 262 to 265, 270, and 124, so that manifesting is not required of any party who stores, treats, or disposes the waste.

(b) The final disposal site need not be a RCRA permitted disposal facility. Section 261.5(g)(3) allows SQGs to send their waste to a facility which i registered by the State to manage solid wastes and still remain exempt fı full regulation.

(c) If the waste was generated by 100-1000 kg/month generators, manifesting v be required to the State-registered solid waste storage facility as well the State-registered disposal facility. In addition, until March 31, 198 waste may be disposed of in a State-registered disposal facility. After 1986, the final disposal site must be a RCRA permitted (or interim status facility.

Source: Barry Stoll (202) 382-4761

B. CERCLA

CERCLA 103(c) Notification

1. In 1985, buried drums containing a CERCLA hazardous substance are discovered at a non-RCRA facility. Is the property owner required by CERCLA to notify EPA or the National Response Center (NRC)?

The property owner must notify either EPA or the NRC depending upon the type substance buried. If the buried CERCLA substances are hazardous waste, then discovery triggers notification obligations under Section 103(c) of CERCLA. Section 103(c) requires that any person who owns or operates a facility not regulated under RCRA interim status or a permit at which hazardous substances as defined in Section 101(14)(C) of CERCLA (i.e., RCRA wastes) are or have be stored, treated or disposed of, notify EPA. This requirement applies to all facilities, regardless of the time at which the waste was placed in the groun

In addition, the dumping or disposal of any hazardous substance consitutes a "release" as defined in Section 101(22) of CERCLA. If the quantity of substa thus disposed is equal to or greater than the appropriate reportable quantity established in 40 CFR 302.4, and was not disposed in a RCRA facility, then th release would be subject to the notification requirements of Section 103(a) a 103(b) of CERCLA. In that situation, the property owner, as the person in ch of the facility, must notify the NRC upon discovery of the release.

Source: Carrie Wehling (202) 475-8070

EXHIBIT G

United States
Environmental Protection
Agency

EPA

The Comprehensive Environmental Response, Compensation, and Liability Act of 1980 PL 96-510 (commonly known as Superfund) mandates in Section 103(c) that certain persons notify the U.S. Environmental Protection Agency (EPA) by June 9, 1981 of the existence of sites where hazardous wastes from industries, businesses, governments, hospitals, and other sources are stored, treated, or disposed of.

Persons who believe they are required to notify have requested that EPA develop and distribute forms and accompanying guidance material in order that respondents can more easily comply with the new law. This in turn, will ensure that information submitted to EPA will be both consistent and useful.

Those required to notify must inform EPA that the site exists and provide details on its location, the amount and type of any hazardous wastes to be found there, and any known, suspected or likely releases of such wastes from the site. All of this information can be provided by completing the enclosed EPA Form 8900-1, Notification of Hazardous Waste Site. The notification form should be mailed to the EPA Regional Office serving the State in which the site is located by June 9, 1981.

The enclosed packet also includes the following:

- General Information
- A list of EPA Region mailing addresses and information telephone numbers
- Instructions for filling out the form

Receipt of this packet does not necessarily mean that you are required to notify. For example, certain locations (such as gasoline service stations and dry cleaning plants) which accumulated hazardous wastes only as a result of minor leakage or spillage that occurred in the course of normal operations are not expected to notify. To determine if you must notify please read the General Information portion of the notification packet.

EPA believes that those legally required to notify may not be able to identify every hazardous waste site. Therefore, we encourage the general public to fill out the notification form if they know of sites which otherwise might not be reported. This is most applicable to sites that are abandoned or where midnight dumping has occurred and where government investigators are not likely to know of the site.

These forms, along with other efforts EPA has underway, should help to compile a national inventory of hazardous waste sites. With this inventory, EPA and State and local governments can do a better job of remedying the problems created by uncontrolled hazardous waste disposal. If you have any questions regarding the notification process, please contact the EPA Region serving the State in which the site is located. We thank you for your cooperation.

Sincerely Yours,

Walter C Barber

Acting Administrator
Environmental Protection Agency

General Information

The primary purpose of this notification program is to locate hazardous waste sites which treated, stored, or disposed of hazardous waste in the past and at which hazardous waste is still present. The most important information you can provide to EPA is the existence of a hazardous waste site and its location. For purposes of describing the hazardous waste to be found at a site, the quantities of such waste and the type of activity at a site, EPA is not requiring that you painstakingly document the information submitted. This information may be based on your knowledge, belief, recollection or reasonably available records.

Who Must Notify

Section 103(c) of Superfund requires that, unless exempted, the following must notify EPA:

- Any person who presently owns or operates a site where there are facilities that store, treat, or dispose of hazardous wastes.
- Any person who, at the time of disposal, owned or operated a site where there are facilities that store, treat, or dispose of hazardous wastes.
- Any person who accepted hazardous wastes for transport and selected a site where there are facilities that store, treat, or dispose of hazardous wastes.

Persons required to notify include individuals and private, public, and government entities.

Who Need Not Notify

1 Section 3010 of the Resource Conservation and Recovery Act (RCRA) requires any person who generates or transports hazardous wastes or who owns or operates a facility that treats, stores, or disposes of hazardous wastes to notify EPA of such activities. For purposes of this notification any person who notified under Section 3010 for one or more treatment, storage, or disposal facilities does not have to notify EPA again of those specific facilities. However, notification is required for facilities not previously reported under Section 3010 that are on or contiguous to sites reported under Section 3010.

2 A person does not have to notify of facilities that have qualified for Interim Status under RCRA.

3 Facilities at which less than 55 gallons (or 7.4 cubic feet) of hazardous wastes have been disposed are not subject to this notification requirement.

4 Locations where hazardous waste accumulated only as a result of minor leakage or spillage that occurred in the course of normal operations are not considered hazardous waste sites for purposes of this notification unless such accumulation may pose significant risk to human health and the environment.

5. Municipal landfills, town dumps and other facilities that receive household wastes only, are not subject to notification. Municipal landfills that received hazardous wastes, especially wastes in segregated shipments from industrial services, would be expected to notify.

6 Facilities at which hazardous wastes had been treated or stored and from which all those hazardous wastes have been removed so as to eliminate any risk to human health and the environment are not subject to this notification requirement.

7 The application of pesticide products registered under the Federal Insecticide, Fungicide and Rodenticide Act and the handling and storage of such products by agricultural producers are not subject to this notification requirement. Sites at which pesticides have been disposed are subject to the notification requirement of Section 103(c). Farmers who have disposed of waste pesticide in a manner consistent with the disposal instruction on the pesticide label are not subject to this notification requirement.

8. Stoppage in transport of hazardous waste which is temporary, incidental to the transportation, or at the ordinary operating convenience of a common or contract carrier is not, for purposes of this notification, storage.

9. Certain facilities which handle hazardous wastes pursuant to RCRA are not subject to this notification requirement. They include:

- Product or raw material storage tanks and transportation vessels or vehicles which are presently in use are not considered hazardous waste storage facilities, even though hazardous waste may be generated in such units in the course of their use. This does not extend, however, to units which are no longer in use and in which hazardous waste remain.
- Short-term accumulation (90 days or less) of hazardous wastes by generators subject to RCRA regulations is not, for purposes of this notification, storage.
- Totally enclosed treatment facilities.
- Wastewater treatment tanks and neutralization tanks.

Wastes Subject To Notification

Wastes subject to notification under Superfund are listed or identified as hazardous in the regulations issued under Section 3001 of RCRA. You are not expected to sample wastes to determine if they are hazardous. Rather, you can use any knowledge you have of the wastes, including the materials or processes involved or the types of facilities that generate the wastes. You should notify about sites if you believe the wastes may be hazardous due to barrel labels, odors, health effects, or other indicators.

Polychlorinated biphenyls (PCBs) are not currently included within the RCRA Section 3001 regulations but are regulated under the Toxic Substances Control Act (TSCA). Consequently, notification of PCB treatment, storage, or disposal sites is not mandatory. However, in order to make this notification more comprehensive, EPA is requesting a voluntary notification of sites containing PCBs as part of this notification program.

Wastes Not Subject To Notification

The following wastes are not subject to notification under Section 103(c) of Superfund.

1 Solid wastes listed below not presently regulated as "hazardous waste" under RCRA.

- "Household waste", defined as any waste material (including garbage, trash, and sanitary wastes in septic tanks) derived from households (including single and multiple residences, hotels, and motels);
- Solid wastes generated by any of the following and returned to the soil as fertilizers:

—The growing and harvesting of agricultural crops.

—The raising of animals, including animal manure.

- Mining overburden returned to the mine site.

- Fly ash waste, bottom ash waste, slag waste, and flue gas emission control waste generated primarily from combustion of coal or other fossil fuels.
- Drilling fluids, produced waters, and other wastes associated with the exploration, development, or production of crude oil, natural gas, or geothermal energy.
- Solid waste from extraction, beneficiation and processing of ores or minerals, including phosphate rock and overburden from the mining of uranium ore.
- Cement kiln dust waste.

2 Natural gas, natural gas liquids, liquefied natural gas, or synthetic gas usable for fuel (or mixtures of natural gas and such synthetic gas).

3 Petroleum, including crude oil or any fraction thereof which is not specifically listed under RCRA

Penalties

Any person convicted of knowingly failing to notify may be fined not more than $10,000 or imprisoned for not more than 1 year, or both. In addition, violators shall not be entitled to the protections of the liability provisions of Section 107 of Superfund Information received under Section 103(c) will not be used against any person in any criminal case, except a prosecution for perjury or for giving a false statement.

What Information Should Be Filed

When filing a notification, you must indicate the site location, specify the amount and type of any hazardous wastes to be found there, and show any known, suspected, or likely releases of such wastes from the site. You can provide all this information by completing and mailing the enclosed EPA Form 8900-1, Notification of Hazardous Waste Site.

The 53 chemical companies who submitted extensive facility information in previous responses to a survey conducted by the House Interstate and Foreign Commerce Committee in 1979 ("Waste Disposal Site Survey Directory"—Committee Print 96-IFC 33 pulished October 1979), may choose to

- complete Form 8900-1, or
- submit to EPA the information provided to the House Committee, updating and supplementing it as necessary to provide the information requested in Form 8900-1.

How Many Forms Should Be Filed

You should provide one notification form per site, whether the site has one or more treatment, storage, or disposal facilities within its boundary (see facility and site definitions).

When to File

Envelopes must be postmarked no later than June 9, 1981.

Acknowledgement

EPA will send you a postcard acknowledging receipt of your notification.

Confidential Information

Industrial and commercial organizations may be concerned about public disclosure of information that they report. All information reported in a notification other than trade secrets can be disclosed to the public, according to the Freedom of Information Act and EPA Freedom of Information Regulations. Because notification information is very general, EPA believes that it is unlikely that information reported qualifies for protection from disclosure as trade secrets.

However, if you wish to claim confidentiality, print the word "confidential" on both sides of the Notification Form and any attachments. EPA encourages you to substantiate your claim at the time of notification by providing written answers to each of the questions listed below. Otherwise EPA may send notice promptly on receipt of notification requesting substantiation within 15 working days.

1 Which portions of the information do you claim are entitled to confidential treatment?

2 How long do you want this information treated confidentially?

3 What measures have you taken to guard against undesired disclosures of the information to others?

4 To what extent has the information been disclosed to others, and what precautions have you taken in connection with those disclosures?

5. Has EPA or any other Federal Agency made a pertinent confidentiality determination? (If so, include a copy of this determination or reference to it, if available).

6 Will disclosure of the information be likely to substantially harm your competitive position? If so, what would the harm be, and why should it be viewed as substantial? What is the relationship between disclosure and the harm?

Where to File

EPA Region Address	Area and Information Telephone Numbers	
US EPA Region 1, Sites Notification, Boston, MA 02203	617 223 0000 617 223 0214	Massachusetts, Maine, Rhode Island Connecticut, New Hampshire, Vermont
US EPA Region 2, Sites Notification, New York, NY 10007	212-264-1573	New Jersey, New York, Virgin Islands, Puerto Rico
US EPA Region 3, Sites Notification, Philadelphia, PA 19106	215-597-8751	Delaware, District of Columbia, Maryland, Pennsylvania, Virginia, West Virginia
US EPA Region 4, Sites Notification, Atlanta GA 30308	404-881-2234	Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee
US EPA Region 5, Sites Notification, Chicago, ILL 60604	312-886-3600	Illinois, Indiana, Michigan, Minnesota, Ohio, Wisconsin
US EPA Region 6, Sites Notification, Dallas, TX 75270	214-767-4075	Arkansas, Louisiana, New Mexico, Oklahoma, Texas
US/EPA Region 7, Sites Notification, Kansas City, MO 64106	816-374-[illegible]	Iowa, Kansas, Missouri, Nebraska
US EPA Region 8, Sites Notification, Denver, CO 80295	800-332-3321 800-525-3022	Colorado Montana, North Dakota, South Dakota, Utah, Wyoming
US EPA Region 9, Sites Notification, San Francisco, CA 94105	415-556-1407	Arizona, California, Hawaii, Nevada, Guam, American Samoa, Commonwealth of the Northern Marianas
US EPA Region 10, Sites Notification, Seattle, WA 98101	800-732-3319 800-426-9847	Washington Alaska, Idaho, Oregon

Definitions

The following definitions may assist you in completing the notification form.

Act: the "Comprehensive Environmental Response, Compensation, and Liability Act of 1980" (Superfund).

Administrator: the Administrator of the United States Environmental Protection Agency.

Disposal: the discharge, deposit, injection, dumping spilling, leaking, or placing of any solid waste or hazardous waste into or on any land or water so that such solid waste or hazardous waste or any constituent thereof may enter the environment or be emitted into the air or discharged into any waters, including ground waters.

Environment: (A) the navigable waters, the waters of the contiguous zone, and the ocean waters of which the natural resources are under the exclusive management authority of the United States under the Fishery Conservation and Management Act of 1976, and (B) any other surface water, ground water, drinking water supply, land surface or subsurface strata, or ambient air within the United States or under the jurisdiction of the United States.

Facility: (A) any building, structure, installation, equipment, pipe or pipeline (including any pipe into a sewer or publicly owned treatment works), well, pit, pond, lagoon, impoundment, ditch, landfill, storage container, motor vehicle rolling stock, or aircraft, or (B) any site or area where a hazardous waste has been deposited, stored, disposed of, or placed, or otherwise come to be located; but does not include any consumer product in consumer use or any vessel (for purposes of this notification, (A) is most applicable).

Hazardous Waste: for purposes of this notification requirement means any hazardous waste having the characteristics identified under or listed pursuant to section 3001 of RCRA (but not including any waste the regulation of which under RCRA has been suspended by Act of Congress).

Owner or Operator: (A) in the case of an onshore facility, any person owning or operating such facility, and (B) in the case of any abandoned facility, any person who owned, operated, or otherwise controlled activities at such facility immediately prior to such abandonment.

Person: an individual, firm, corporation, association, partnership, consortium, joint venture, commercial entity, United States Government, State, municipality, commission, political subdivision of a State or any interstate body.

Release: any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing, into the environment.

Site: the location at which hazardous wastes were stored, treated, or disposed of by persons required to notify under Section 103(c). This includes all contiguous land, structures, other appurtenances, and improvements on the land, used for treating, storing, or disposing of hazardous wastes. A site may consist of several treatment, storage, or disposal facilities.

Storage: the holding of hazardous waste for a temporary period at the end of which the hazardous waste is treated, stored, or disposed elsewhere.

Transport or Transportation: the movement of a hazardous substance by any mode, including pipeline (as defined in the Pipeline Safety Act), and in the case of a hazardous substance which has been accepted for transportation by a common or contract carrier, the term "transport" or "transportation" shall include any stoppage in transit which is temporary, incidental to the transportation movement, and at the ordinary operating convenience of a common or contract carrier, and any such stoppage shall be considered as continuity of movement and not as the storage of a hazardous waste.

Treatment: any method, technique, or process, including neutralization, designed to change the physical, chemical or biological character or composition of any hazardous waste to neutralize such waste, or so as to recover energy or material resources from the waste, or to render such waste non-hazardous, or less hazardous; safer to transport, store, or dispose of; or amenable for recovery, or storage, or reduced in volume. Such term includes any activity or processing designed to change the physical form or chemical composition of hazardous waste so as to render it nonhazardous.

Waste Quantity: the actual or estimated size of the area affected (such as square feet or acres) and/or amount of waste (such as gallons or cubic feet) for the various treatment, storage or disposal facilities used at a site.

Waste Type: the type of hazardous substance that has been treated, stored, or disposed at a site.

EPA

Official Business
Penalty for Private Use
$300

Bulk Rate
Postage and Fees Paid
EPA
Permit No. G-35

United States
Environmental Protection
Agency

Office of Hazardous
Emergency Response WH-548
Washington DC 20460

EPA Notification of Hazardous Waste Site

United States Environmental Protection Agency
Washington DC 20460

This initial notification information is required by Section 103(c) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 and must be mailed by June 9, 1981.

Please type or print in ink. If you need additional space, use separate sheets of paper. Indicate the letter of the item which applies.

A Person Required to Notify:

Enter the name and address of the person or organization required to notify.

Name ______
Street ______
City ______ State ______ Zip Code ______

B Site Location:

Enter the common name (if known) and actual location of the site.

Name of Site ______
Street ______
City ______ County ______ State ______ Zip Code ______

C Person to Contact:

Enter the name, title (if applicable), and business telephone number of the person to contact regarding information submitted on this form.

Name (Last, First and Title) ______
Phone ______

D Dates of Waste Handling:

Enter the years that you estimate waste treatment, storage, or disposal began and ended at the site.

From (Year) ______ To (Year) ______

E Waste Type: Choose the option you prefer to complete

Option 1: Select general waste types and source categories. If you do not know the general waste types or sources, you are encouraged to describe the site in Item I—Description of Site.

General Type of Waste:
Place an X in the appropriate boxes. The categories listed overlap. Check each applicable category.

1. ☐ Organics
2. ☐ Inorganics
3. ☐ Solvents
4. ☐ Pesticides
5. ☐ Heavy metals
6. ☐ Acids
7. ☐ Bases
8. ☐ PCBs
9. ☐ Mixed Municipal Waste
10. ☐ Unknown
11. ☐ Other (Specify)

______
______
______

Source of Waste:
Place an X in the appropriate boxes.

1. ☐ Mining
2. ☐ Construction
3. ☐ Textiles
4. ☐ Fertilizer
5. ☐ Paper/Printing
6. ☐ Leather Tanning
7. ☐ Iron/Steel Foundry
8. ☐ Chemical, General
9. ☐ Plating/Polishing
10. ☐ Military/Ammunition
11. ☐ Electrical Conductors
12. ☐ Transformers
13. ☐ Utility Companies
14. ☐ Sanitary/Refuse
15. ☐ Photofinish
16. ☐ Lab/Hospital
17. ☐ Unknown
18. ☐ Other (Specify)

______
______
______

Option 2: This option is available to persons familiar with the Resource Conservation and Recovery Act (RCRA) Section 3001 regulations (40 CFR Part 261).

Specific Type of Waste:
EPA has assigned a four-digit number to each hazardous waste listed in the regulations under Section 3001 of RCRA. Enter the appropriate four-digit number in the boxes provided. A copy of the list of hazardous wastes and codes can be obtained by contacting the EPA Region serving the State in which the site is located.

Form Approved
OMB No. 2000-0138

Notification of Hazardous Waste Site — **Side Two**

F Waste Quantity

Place an X in the appropriate boxes to indicate the facility types found at the site.

In the "total facility waste amount" space give the estimated combined quantity (volume) of hazardous wastes at the site using cubic feet or gallons.

In the "total facility area" space, give the estimated area size which the facilities occupy using square feet or acres.

Facility Type

1. ☐ Piles
2. ☐ Land Treatment
3. ☐ Landfill
4. ☐ Tanks
5. ☐ Impoundment
6. ☐ Underground Injection
7. ☐ Drums, Above Ground
8. ☐ Drums, Below Ground
9. ☐ Other (Specify) ____________

Total Facility Waste Amount

cubic feet ____________

gallons ____________

Total Facility Area

square feet ____________

acres ____________

G Known, Suspected or Likely Releases to the Environment:

Place an X in the appropriate boxes to indicate any known, suspected, or likely releases of wastes to the environment.

☐ Known ☐ Suspected ☐ Likely ☐ None

Note: Items H and I are optional. Completing these items will assist EPA and State and local governments in locating and assessing hazardous waste sites. Although completing the items is not required, you are encouraged to do so

H Sketch Map of Site Location: (Optional)

Sketch a map showing streets, highways, routes or other prominent landmarks near the site. Place an X on the map to indicate the site location. Draw an arrow showing the direction north. You may substitute a publishing map showing the site location.

I Description of Site: (Optional)

Describe the history and present conditions of the site. Give directions to the site and describe any nearby wells, springs, lakes, or housing. Include such information as how waste was disposed and where the waste came from. Provide any other information or comments which may help describe the site conditions.

J Signature and Title:

The person or authorized representative (such as plant managers, superintendents, trustees or attorneys) of persons required to notify must sign the form and provide a mailing address (if different than address in item A). For other persons providing notification, the signature is optional. Check the boxes which best describe the relationship to the site of the person required to notify. If you are not required to notify check "Other"

Name ____________

Street ____________

City ____________ State ____________ Zip Code ____________

Signature ____________ Date ____________

☐ Owner, Present
☐ Owner, Past
☐ Transporter
☐ Operator, Present
☐ Operator, Past
☐ Other

[FR Doc. 81-[illegible] Filed 4-14-81; [illegible] am]

BILLING CODE [illegible]-C

EXHIBIT H

APPENDIX A TO PART 355—THE LIST OF EXTREMELY HAZARDOUS SUBSTANCES AND THEIR THRESHOLD PLANNING QUANTITIES

[Alphabetical Order]

CAS No.	Chemical name	Notes	Reportable quantity* (pounds)	Threshold planning quantity (pounds)
75-86-5	Acetone Cyanohydrin		10	1,000
1752-30-3	Acetone Thiosemicarbazide	e	1	1,000/10,000
107-02-8	Acrolein		1	500
79-06-1	Acrylamide	d, l	5,000	1,000/10,000
107-13-1	Acrylonitrile	d, l	100	10,000
814-68-6	Acrylyl Chloride	e, h	1	100
111-69-3	Adiponitrile	e, l	1	1,000
116-06-3	Aldicarb	c	1	100/10,000
309-00-2	Aldrin	d	1	500/10,000
107-18-6	Allyl Alcohol		100	1,000
107-11-9	Allylamine	e	1	500
20859-73-8	Aluminum Phosphide	b	100	500
54-62-6	Aminopterin	e	1	500/10,000
78-53-5	Amiton	e	1	500
3734-97-2	Amiton Oxalate	e	1	100/10,000
7664-41-7	Ammonia	l	100	500
300-62-9	Amphetamine	e	1	1,000
62-53-3	Aniline	d, l	5,000	1,000
88-05-1	Aniline, 2,4,6-Trimethyl-	e	1	500
7783-70-2	Antimony Pentafluoride	e	1	500
1397-94-0	Antimycin A	c, e	1	1,000/10,000
86-88-4	ANTU		100	500/10,000
1303-28-2	Arsenic pentoxide	d	1	100/10,000
1327-53-3	Arsenous oxide	d, h	1	100/10,000
7784-34-1	Arsenous trichloride	d	1	500
7784-42-1	Arsine	e	1	100
2642-71-9	Azinphos-Ethyl	e	1	100/10,000
86-50-0	Azinphos-Methyl		1	10/10,000
98-87-3	Benzal Chloride	d	5,000	500
98-16-8	Benzenamine, 3-(Trifluoromethyl)-	e	1	500
100-14-1	Benzene, 1-(Chloromethyl)-4-Nitro-	e	1	500/10,000
98-05-5	Benzenearsonic Acid	e	1	10/10,000
3615-21-2	Benzimidazole, 4,5-Dichloro-2-(Trifluoromethyl)-	e, g	1	500/10,000
98-07-7	Benzotrichloride	d	10	500
100-44-7	Benzyl Chloride	d	100	500
140-29-4	Benzyl Cyanide	e, h	1	500
15271-41-7	Bicyclo[2.2.1]Heptane-2-Carbonitrile, 5-Chloro-6-((((Methylamino)Carbonyl)Oxy)Imino)-, (1s-(1-alpha, 2-beta, 4-alpha, 5-alpha, 6E))-	e	1	500/10,000
534-07-6	Bis(Chloromethyl) Ketone	e	1	10/10,000
4044-65-9	Bitoscanate	e	1	500/10,000
10294-34-5	Boron Trichloride	e	1	500
7637-07-2	Boron Trifluoride	e	1	500
353-42-4	Boron Trifluoride Compound With Methyl Ether (1:1)	e	1	1,000
28772-56-7	Bromadiolone	e	1	100/10,000
7726-95-6	Bromine	e, l	1	500
1306-19-0	Cadmium Oxide	e	1	100/10,000
2223-93-0	Cadmium Stearate	c, e	1	1,000/10,000
7778-44-1	Calcium arsenate	d	1	500/10,000
8001-35-2	Camphechlor	d	1	500/10,000

APPENDIX A TO PART 355—THE LIST OF EXTREMELY HAZARDOUS SUBSTANCES AND THEIR THRESHOLD PLANNING QUANTITIES—Continued

[Alphabetical Order]

CAS No.	Chemical name	Notes	Reportable quantity* (pounds)	Threshold planning quantity (pounds)
56-25-7	Cantharidin	e	1	100/10,000
51-83-2	Carbachol Chloride	e	1	500/10,000
26419-73-8	Carbamic Acid, Methyl-, 0-(((2,4-Dimethyl-1, 3-Dithiolan-2-yl)Methylene)Amino)-	e	1	100/10,000
1563-66-2	Carbofuran		10	10/10,000
75-15-0	Carbon Disulfide	l	100	10,000
786-19-6	Carbophenothion	e	1	500
57-74-9	Chlordane	d	1	1,000
470-90-6	Chlorfenvinfos	e	1	500
7782-50-5	Chlorine		10	100
24934-91-6	Chlormephos	e	1	500
999-81-5	Chlormequat Chloride	e, h	1	100/10,000
79-11-8	Chloroacetic Acid	e	1	100/10,000
107-07-3	Chloroethanol	e	1	500
627-11-2	Chloroethyl Chloroformate	e	1	1,000
67-66-3	Chloroform	d,l	10	10,000
542-88-1	Chloromethyl ether	d, h	10	100
107-30-2	Chloromethyl methyl ether	e,d	10	100
3691-35-8	Chlorophacinone	e	1	100/10,000
1982-47-4	Chloroxuron	e	1	500/10,000
21923-23-9	Chlorthiophos	e, h	1	500
10025-73-7	Chromic Chloride	e	1	1/10,000
62207-76-5	Cobalt, ((2,2'-(1,2-Ethanediylbis (Nitrilomethylidyne))Bis(6-Fluorophenolato))(2-)-N,N',O,O')-,	e	1	100/10,000
10210-68-1	Cobalt Carbonyl	e, h	1	10/10,000
64-86-8	Colchicine	e, h	1	10/10,000
56-72-4	Coumaphos		10	100/10,000
5836-29-3	Coumatetralyl	e	1	500/10,000
95-48-7	Cresol, o-	d	1,000	1,000/10,000
535-89-7	Crimidine	e	1	100/10,000
4170-30-3	Crotonaldehyde		100	1,000
123-73-9	Crotonaldehyde, (E)-		100	1,000
506-68-3	Cyanogen Bromide		1,000	500/10,000
506-78-5	Cyanogen Iodide	e	1	1,000/10,000
2636-26-2	Cyanophos	e	1	1,000
675-14-9	Cyanuric Fluoride	e	1	100
66-81-9	Cycloheximide	e	1	100/10,000
108-91-8	Cyclohexylamine	e, l	1	10,000
17702-41-9	Decaborane(14)	e	1	500/10,000
8065-48-3	Demeton	e	1	500
919-86-8	Demeton-S-Methyl	e	1	500
10311-84-9	Dialifor	e	1	100/10,000
19287-45-7	Diborane	e	1	100
111-44-4	Dichloroethyl ether	d	10	10,000
149-74-6	Dichloromethylphenylsilane	e	1	1,000
62-73-7	Dichlorvos		10	1,000
141-66-2	Dicrotophos	e	1	100
1464-53-5	Diepoxybutane	d	10	500
814-49-3	Diethyl Chlorophosphate	e, h	1	500
1642-54-2	Diethylcarbamazine Citrate	e	1	100/10,000
71-63-6	Digitoxin	c, e	1	100/10,000
2238-07-5	Diglycidyl Ether	e	1	1,000
20830-75-5	Digoxin	e, h	1	10/10,000
115-26-4	Dimefox	e	1	500
60-51-5	Dimethoate		10	500/10,000
2524-03-0	Dimethyl Phosphorochloridothioate	e	1	500
77-78-1	Dimethyl sulfate	d	100	500
75-78-5	Dimethyldichlorosilane	e, h	1	500
57-14-7	Dimethylhydrazine	d	10	1,000
99-98-9	Dimethyl-p-Phenylenediamine	e	1	10/10,000
644-64-4	Dimetilan	e	1	500/10,000
534-52-1	Dinitrocresol		10	10/10,000
88-85-7	Dinoseb		1,000	100/10,000
1420-07-1	Dinoterb	e	1	500/10,000
78-34-2	Dioxathion	e	1	500
82-66-6	Diphacinone	e	1	10/10,000
152-16-9	Diphosphoramide, Octamethyl-		100	100
298-04-4	Disulfoton		1	500

APPENDIX A TO PART 355—THE LIST OF EXTREMELY HAZARDOUS SUBSTANCES AND THEIR THRESHOLD PLANNING QUANTITIES—Continued

[Alphabetical Order]

CAS No.	Chemical name	Notes	Reportable quantity* (pounds)	Threshold planning quantity (pounds)
514-73-8	Dithiazanine Iodide	e	1	500/10,000
541-53-7	Dithiobiuret		100	100/10,000
316-42-7	Emetine, Dihydrochloride	e, h	1	1/10,000
115-29-7	Endosulfan		1	10/10,000
2778-04-3	Endothion	e	1	500/10,000
72-20-8	Endrin		1	500/10,000
106-89-8	Epichlorohydrin	d, 1	100	1,000
2104-64-5	EPN	e	1	100/10,000
50-14-6	Ergocalciferol	c, e	1	1,000/10,000
379-79-3	Ergotamine Tartrate	e	1	500/10,000
1622-32-8	Ethanesulfonyl Chloride, 2-Chloro-	e	1	500
10140-87-1	Ethanol, 1,2-Dichloro-, Acetate	e	1	1,000
563-12-2	Ethion		10	1,000
13194-48-4	Ethoprophos	e	1	1,000
538-07-8	Ethylbis(2-Chloroethyl)Amine	e, h	1	500
371-62-0	Ethylene Fluorohydrin	c, e, h	1	10
75-21-8	Ethylene oxide	d, 1	10	1,000
107-15-3	Ethylenediamine		5,000	10,000
151-56-4	Ethyleneimine	d	1	500
542-90-5	Ethylthiocyanate	e	1	10,000
22224-92-6	Fenamiphos	e	1	10/10,000
122-14-5	Fenitrothion	e	1	500
115-90-2	Fensulfothion	e, h	1	500
4301-50-2	Fluenetil	e	1	100/10,000
7782-41-4	Fluorine	k	10	500
640-19-7	Fluoroacetamide	j	100	100/10,000
144-49-0	Fluoroacetic Acid	e	1	10/10,000
359-06-8	Fluoroacetyl Chloride	c, e	1	10
51-21-8	Fluorouracil	e	1	500/10,000
944-22-9	Fonofos	e	1	500
50-00-0	Formaldehyde	d, 1	100	500
107-16-4	Formaldehyde Cyanohydrin	e, h	1	1,000
23422-53-9	Formetanate Hydrochloride	e, h	1	500/10,000
2540-82-1	Formothion	e	1	100
17702-57-7	Formparanate	e	1	100/10,000
21548-32-3	Fosthietan	e	1	500
3878-19-1	Fuberidazole	e	1	100/10,000
110-00-9	Furan		100	500
13450-90-3	Gallium Trichloride	e	1	500/10,000
77-47-4	Hexachlorocyclopentadiene	d, h	10	100
4835-11-4	Hexamethylenediamine, N,N'-Dibutyl-	e	1	500
302-01-2	Hydrazine	d	1	1,000
74-90-8	Hydrocyanic Acid		10	100
7647-01-0	Hydrogen chloride (gas only)	e, 1	5,000	500
7664-39-3	Hydrogen Fluoride		100	100
7722-84-1	Hydrogen Peroxide (Conc >52%)	e, l	1	1,000
7783-07-5	Hydrogen Selenide	e	1	10
7783-06-4	Hydrogen Sulfide	l	100	500
123-31-9	Hydroquinone	l	1	500/10,000
13463-40-6	Iron, Pentacarbonyl-	e	1	100
297-78-9	Isobenzan	e	1	100/10,000
78-82-0	Isobutyronitrile	e, h	1	1,000
102-36-3	Isocyanic Acid, 3,4-Dichlorophenyl Ester	e	1	500/10,000
465-73-6	Isodrin		1	100/10,000
55-91-4	Isofluorphate	c	100	100
4098-71-9	Isophorone Diisocyanate	b, e	1	100
108-23-6	Isopropyl Chloroformate	e	1	1,000
119-38-0	Isopropylmethylpyrazolyl Dimethylcarbamate	e	1	500
78-97-7	Lactonitrile	e	1	1,000
21609-90-5	Leptophos	e	1	500/10,000
541-25-3	Lewisite	c, e, h	1	10
58-89-9	Lindane	d	1	1,000/10,000
7580-67-8	Lithium Hydride	b, e	1	100
109-77-3	Malononitrile		1,000	500/10,000
12108-13-3	Manganese, Tricarbonyl Methylcyclopentadienyl	e, h	1	100
51-75-2	Mechlorethamine	c, e	1	10
950-10-7	Mephosfolan			

APPENDIX A TO PART 355—THE LIST OF EXTREMELY HAZARDOUS SUBSTANCES AND THEIR THRESHOLD PLANNING QUANTITIES—Continued

[Alphabetical Order]

CAS No.	Chemical name	Notes	Reportable quantity* (pounds)	Threshold planning quantity (pounds)
7487-94-7	Mercuric Chloride	e	1	500/10,000
21908-53-2	Mercuric Oxide	e	1	500/10,000
10476-95-6	Methacrolein Diacetate	e	1	1,000
760-93-0	Methacrylic Anhydride	e	1	500
126-98-7	Methacrylonitrile	h	1,000	500
920-46-7	Methacryloyl Chloride	e	1	100
30674-80-7	Methacryloyloxyethyl Isocyanate	e, h	1	100
10265-92-6	Methamidophos	e	1	100/10,000
558-25-8	Methanesulfonyl Fluoride	e	1	1,000
950-37-8	Methidathion	e	1	500/10,000
2032-65-7	Methiocarb		10	500/10,000
16752-77-5	Methomyl	h	100	500/10,000
151-38-2	Methoxyethylmercuric Acetate	e	1	500/10,000
80-63-7	Methyl 2-Chloroacrylate	e	1	500
74-83-9	Methyl Bromide	l	1,000	1,000
79-22-1	Methyl Chloroformate	d, h	1,000	500
60-34-4	Methyl Hydrazine		10	500
624-83-9	Methyl Isocyanate		10	500
556-61-6	Methyl Isothiocyanate	b, e	1	500
74-93-1	Methyl Mercaptan	l	100	500
3735-23-7	Methyl Phenkapton	e	1	500
676-97-1	Methyl Phosphonic Dichloride	b, e	1	100
556-64-9	Methyl Thiocyanate	e	1	10,000
78-94-4	Methyl Vinyl Ketone	e	1	10
502-39-6	Methylmercuric Dicyanamide	e	1	500/10,000
75-79-6	Methyltrichlorosilane	e, h	1	500
1129-41-5	Metolcarb	e	1	100/10,000
7786-34-7	Mevinphos		10	500
315-18-4	Mexacarbate		1,000	500/10,000
50-07-7	Mitomycin C	d	10	500/10,000
6923-22-4	Monocrotophos	e	1	10/10,000
2763-96-4	Muscimol		1,000	500/10,000
505-60-2	Mustard Gas	e, h	1	500
13463-39-3	Nickel carbonyl	d	10	1
54-11-5	Nicotine	c	100	100
65-30-5	Nicotine sulfate	e	100	100/10,000
7697-37-2	Nitric Acid		1,000	1,000
10102-43-9	Nitric Oxide	c	10	100
98-95-3	Nitrobenzene	l	1,000	10,000
1122-60-7	Nitrocyclohexane	e	1	500
10102-44-0	Nitrogen Dioxide		10	100
62-75-9	Nitrosodimethylamine	d, h	10	1,000
991-42-4	Norbormide	e	1	100/10,000
0	Organorhodium Complex (PMN-82-147)	e	1	10/10,000
630-60-4	Ouabain	c, e	1	100/10,000
23135-22-0	Oxamyl	e	1	100/10,000
78-71-7	Oxetane, 3,3-Bis(Chloromethyl)-	1	●	500
2497-07-6	Oxydisulfoton	e, h	1	500
10028-15-6	Ozone	e	1	100
1910-42-5	Paraquat	e	1	10/10,000
2074-50-2	Paraquat Methosulfate	e	1	10/10,000
56-38-2	Parathion	c, d	10	100
298-00-0	Parathion-Methyl	c	100	100/10,000
12002-03-8	Paris Green	d	1	500/10,000
19624-22-7	Pentaborane	e	1	500
2570-26-5	Pentadecylamine	e	1	100/10,000
79-21-0	Peracetic Acid	e	1	500
594-42-3	Perchloromethylmercaptan		100	500
108-95-2	Phenol		1,000	500/10,000
4418-66-0	Phenol, 2,2'-Thiobis(4-Chloro-6-Methyl)-	e	1	100/10,000
64-00-6	Phenol, 3-(1-Methylethyl)-, Methylcarbamate	e	1	500/10,000
58-36-6	Phenoxarsine, 10,10'-Oxydi-	e	1	500/10,000
696-28-6	Phenyl Dichloroarsine	d, h	1	500
59-88-1	Phenylhydrazine Hydrochloride	e	1	1,000/10,000
62-38-4	Phenylmercury Acetate		100	500/10,000

APPENDIX A TO PART 355—THE LIST OF EXTREMELY HAZARDOUS SUBSTANCES AND THEIR THRESHOLD PLANNING QUANTITIES—Continued

[Alphabetical Order]

CAS No.	Chemical name	Notes	Reportable quantity* (pounds)	Threshold planning quantity (pounds)
4104-14-7	Phosacetim	e	1	100/10,000
947-02-4	Phosfolan	e	1	100/10,000
75-44-5	Phosgene	l	10	10
732-11-6	Phosmet	e	1	10/10,000
13171-21-6	Phosphamidon	e	1	100
7803-51-2	Phosphine		100	500
2703-13-1	Phosphonothioic Acid, Methyl-, O-Ethyl O-(4-(Methylthio)Phenyl) Ester	e	1	500
50782-69-9	Phosphonothioic Acid, Methyl-, S-(2-(Bis(1-Methylethyl)Amino)Ethyl O-Ethyl Ester	e	1	100
2665-30-7	Phosphonothioic Acid, Methyl-, O-(4-Nitrophenyl) O-Phenyl Ester	e	1	500
3254-63-5	Phosphoric Acid, Dimethyl 4-(Methylthio) Phenyl Ester	e	1	500
2587-90-8	Phosphorothioic Acid, O,O-Dimethyl-S-(2-Methylthio) Ethyl Ester	c, e, g	1	500
7723-14-0	Phosphorus	b, h	1	100
10025-87-3	Phosphorus Oxychloride	d	1,000	500
10026-13-8	Phosphorus Pentachloride	b, e	1	500
1314-56-3	Phosphorus Pentoxide	b, e	1	10
7719-12-2	Phosphorus Trichloride		1,000	1,000
57-47-6	Physostigmine	e	1	100/10,000
57-64-7	Physostigmine, Salicylate (1:1)	e	1	100/10,000
124-87-8	Picrotoxin	e	1	500/10,000
110-89-4	Piperidine	e	1	1,000
23505-41-1	Pirimifos-Ethyl	e	1	1,000
10124-50-2	Potassium arsenite	d	1	500/10,000
151-50-8	Potassium Cyanide	b	10	100
506-61-6	Potassium Silver Cyanide	b	1	500
2631-37-0	Promecarb	e, h	1	500/10,000
106-96-7	Propargyl Bromide	e	1	10
57-57-8	Propiolactone, Beta-	e	1	500
107-12-0	Propionitrile		10	500
542-76-7	Propionitrile, 3-Chloro-		1,000	1,000
70-69-9	Propiophenone, 4-Amino-	e, g	1	100/10,000
109-61-5	Propyl Chloroformate	e	1	500
75-56-9	Propylene Oxide	l	100	10,000
75-55-8	Propyleneimine	d	1	10,000
2275-18-5	Prothoate	e	1	100/10,000
129-00-0	Pyrene	c	5,000	1,000/10,000
140-76-1	Pyridine, 2-Methyl-5-Vinyl-	e	1	500
504-24-5	Pyridine, 4-Amino-	h	1,000	500/10,000
1124-33-0	Pyridine, 4-Nitro-, 1-Oxide	e	1	500/10,000
53558-25-1	Pyriminil	e, h	1	100/10,000
14167-18-1	Salcomine	e	1	500/10,000
107-44-8	Sarin	e, h	1	10
7783-00-8	Selenious Acid		10	1,000/10,000
7791-23-3	Selenium Oxychloride	e	1	500
563-41-7	Semicarbazide Hydrochloride	e	1	1,000/10,000
3037-72-7	Silane, (4-Aminobutyl)Diethoxymethyl-	e	1	1,000
7631-89-2	Sodium Arsenate	d	1,000	1,000/10,000
7784-46-5	Sodium arsenite	d	1	500/10,000
26628-22-8	Sodium Azide (Na(N3))	b	1,000	500
124-65-2	Sodium Cacodylate	e	1	100/10,000
143-33-9	Sodium Cyanide (Na(CN))	b	10	100
62-74-8	Sodium Fluoroacetate		10	10/10,000
13410-01-0	Sodium Selenate	e	1	100/10,000
10102-18-8	Sodium Selenite	h	100	100/10,000
10102-20-2	Sodium Tellurite	e	1	500/10,000
900-95-8	Stannane, Acetoxytriphenyl-	e, g	1	500/10,000
57-24-9	Strychnine	c	10	100/10,000
60-41-3	Strychnine sulfate	e	10	100/10,000
3689-24-5	Sulfotep		100	500
3569-57-1	Sulfoxide, 3-Chloropropyl Octyl	e	1	500
7446-09-5	Sulfur Dioxide	e, l	1	500
7783-60-0	Sulfur Tetrafluoride	e	1	100
7446-11-9	Sulfur Trioxide	b, e	1	100
7664-93-9	Sulfuric Acid		1,000	1,000
77-81-6	Tabun	c, e, h	1	10
13494-80-9	Tellurium	e	1	500/10,000
7783-80-4	Tellurium Hexafluoride	e, k	1	100

APPENDIX A TO PART 355—THE LIST OF EXTREMELY HAZARDOUS SUBSTANCES AND THEIR THRESHOLD PLANNING QUANTITIES—Continued

[Alphabetical Order]

CAS No.	Chemical name	Notes	Reportable quantity* (pounds)	Threshold planning quantity (pounds)
107-49-3	TEPP		10	100
13071-79-9	Terbufos	e, h	1	100
78-00-2	Tetraethyllead	c, d	10	100
597-64-8	Tetraethyltin	c, e	1	100
75-74-1	Tetramethyllead	c, e, l	1	100
509-14-8	Tetranitromethane		10	500
10031-59-1	Thallium Sulfate	h	100	100/10,000
6533-73-9	Thallous Carbonate	c, h	100	100/10,000
7791-12-0	Thallous Chloride	c, h	100	100/10,000
2757-18-8	Thallous Malonate	c, e, h	1	100/10,000
7446-18-6	Thallous Sulfate		100	100/10,000
2231-57-4	Thiocarbazide	e	1	1,000/10,000
39196-18-4	Thiofanox		100	100/10,000
297-97-2	Thionazin		100	500
108-98-5	Thiophenol		100	500
79-19-6	Thiosemicarbazide		100	100/10,000
5344-82-1	Thiourea, (2-Chlorophenyl)-		100	100/10,000
614-78-8	Thiourea, (2-Methylphenyl)-	e	1	500/10,000
7550-45-0	Titanium Tetrachloride	e	1	100
584-84-9	Toluene 2,4-Diisocyanate		100	500
91-08-7	Toluene 2,6-Diisocyanate		100	100
110-57-6	Trans-1,4-Dichlorobutene	e	1	500
1031-47-6	Triamiphos	e	1	500/10,000
24017-47-8	Triazofos	e	1	500
76-02-8	Trichloroacety Chloride	e	1	500
115-21-9	Trichloroethylsilane	e, h	1	500
327-98-0	Trichloronate	e, k	1	500
98-13-5	Trichlorophenylsilane	e, h	1	500
1558-25-4	Trichloro(Chloromethyl)Silane	e	1	100
27137-85-5	Trichloro(Dichlorophenyl)Silane	e	1	500
998-30-1	Triethoxysilane	e	1	500
75-77-4	Trimethylchlorosilane	e	1	1,000
824-11-3	Trimethylolpropane Phosphite	e, h	1	100/10,000
1066-45-1	Trimethyltin Chloride	e	1	500/10,000
639-58-7	Triphenyltin Chloride	e	1	500/10,000
555-77-1	Tris(2-Chloroethyl)Amine	e, h	1	100
2001-95-8	Valinomycin	c, e	1	1,000/10,000
1314-62-1	Vanadium Pentoxide		1,000	100/10,000
108-05-4	Vinyl Acetate Monomer	d, l	5,000	1,000
81-81-2	Warfarin		100	500/10,000
129-06-6	Warfarin sodium	e, h	100	100/10,000
28347-13-9	Xylylene Dichloride	e	1	100/10,000
58270-08-9	Zinc, Dichloro(4,4-Dimethyl-5((((Methylamino) Carbonyl)Oxy)Imino)Pentanenitrile)-,(T-4)-	e	1	100/10,000
1314-84-7	Zinc Phosphide	b	100	500

*Only the statutory or final RQ is shown. For more information, see 40 CFR Table 302.4

Notes:

a This chemical does not meet acute toxicity criteria. Its TPQ is set at 10,000 pounds.
b This material is a reactive solid. The TPQ does not default to 10,000 pounds for non-powder, non-molten, non-solution form.
c The calculated TPQ changed after technical review as described in the technical support document.
d Indicates that the RQ is subject to change when the assessment of potential carcinogenicity and/or other toxicity is completed.
e Statutory reportable quantity for purposes of notification under SARA sect 304(a)(2).
f [Reserved]
g New chemicals added that were not part of the original list of 402 substances.
h Revised TPQ based on new or re-evaluated toxicity data.
j TPQ is revised to its calculated value and does not change due to technical review as in proposed rule.
k The TPQ was revised after proposal due to calculation error.
l Chemicals on the original list that do not meet toxicity criteria but because of their high production volume and recognized toxicity are considered chemicals of concern ("Other chemicals").

[52 FR 13395, Apr. 22, 1987; 52 FR 15321, 15412, Apr. 28, 1987; 52 FR 48073-48074, Dec. 17, 1987; 53 FR 5575, Feb. 25, 1988; 54 FR 43165, Oct. 20, 1989; 54 FR 53063, Dec. 27, 1989; 55 FR 5546, Feb. 15, 1990; 58 FR 35330, June 30, 1993]

APPENDIX B TO PART 355—THE LIST OF EXTREMELY HAZARDOUS SUBSTANCES AND THEIR THRESHOLD PLANNING QUANTITIES

[CAS Number Order]

CAS No.	Chemical name	Notes	Reportable quantity* (pounds)	Threshold planning quantity (pounds)
0	Organorhodium Complex (PMN-82-147)	e	1	10/10,000
50-00-0	Formaldehyde	d,l	100	500
50-07-7	Mitomycin C	d	10	500/10,000
50-14-6	Ergocalciferol	c, e	1	1,000/10,000
51-21-8	Fluorouracil	e	1	500/10,000
51-75-2	Mechlorethamine	c, e	1	10
51-83-2	Carbachol Chloride	e	1	500/10,000
54-11-5	Nicotine	c	100	100
54-62-6	Aminopterin	e	1	500/10,000
55-91-4	Isofluorphate	c	100	100
56-25-7	Cantharidin	e	1	100/10,000
56-38-2	Parathion	c,d	10	100
56-72-4	Coumaphos		10	100/10,000
57-14-7	Dimethylhydrazine	d	10	1,000
57-24-9	Strychnine	c	10	100/10,000
57-47-6	Physostigmine	e	1	100/10,000
57-57-8	Propiolactone, Beta-	e	1	500
57-64-7	Physostigmine, Salicylate (1:1)	e	1	100/10,000
57-74-9	Chlordane	d	1	1,000
58-36-6	Phenoxarsine, 10,10'-Oxydi-	e	1	500/10,000
58-89-9	Lindane	d	1	1,000/10,000
59-88-1	Phenylhydrazine Hydrochloride	e	1	1,000/10,000
60-34-4	Methyl Hydrazine		10	500
60-41-3	Strychnine sulfate	e	10	100/10,000
60-51-5	Dimethoate		10	500/10,000
62-38-4	Phenylmercury Acetate		100	500/10,000
62-53-3	Aniline	d, l	5,000	1,000
62-73-7	Dichlorvos		10	1,000
62-74-8	Sodium Fluoroacetate		10	10/10,000
62-75-9	Nitrosodimethylamine	d,h	10	1,000
64-00-6	Phenol, 3-(1-Methylethyl)-, Methylcarbamate	e	1	500/10,000
64-86-8	Colchicine	e, h	1	10/10,000
65-30-5	Nicotine sulfate	e	100	100/10,000
66-81-9	Cycloheximide	e	1	100/10,000
67-66-3	Chloroform	d,l	10	10,000
70-69-9	Propiophenone, 4-Amino-	e, g	1	100/10,000
71-63-6	Digitoxin	c, e	1	100/10,000
72-20-8	Endrin		1	500/10,000
74-83-9	Methyl bromide	l	1,000	1,000
74-90-8	Hydrocyanic Acid		10	100
74-93-1	Methyl Mercaptan	l	100	500
75-15-0	Carbon Disulfide	l	100	10,000
75-21-8	Ethylene oxide	d,l	10	1,000
75-44-5	Phosgene	l	10	10
75-55-8	Propyleneimine	d	1	10,000
75-56-9	Propylene Oxide	l	100	10,000
75-74-1	Tetramethyllead	c, e, l	1	100
75-77-4	Trimethylchlorosilane	e	1	1,000
75-78-5	Dimethyldichlorosilane	e, h	1	500
75-79-6	Methyltrichlorosilane	e, h	1	500
75-86-5	Acetone Cyanohydrin		10	1,000
76-02-8	Trichloroacetyl Chloride	e	1	500
77-47-4	Hexachlorocyclopentadiene	d,h	10	100
77-78-1	Dimethyl sulfate	d	100	500
77-78-1	Dimethyl Sulfate	d	1	500
77-81-6	Tabun	c, e, h	1	10
78-00-2	Tetraethyllead	c, d	10	100
78-34-2	Dioxathion	e	1	500
78-53-5	Amiton	e	1	500
78-71-7	Oxetane, 3,3-Bis(Chloromethyl)-	e	1	500
78-82-0	Isobutyronitrile	e, h	1	1,000
78-94-4	Methyl Vinyl Ketone	e	1	10
78-97-7	Lactonitrile	e	1	1,000
79-06-1	Acrylamide	d, l	5,000	1,000/10,000
79-11-8	Chloroacetic Acid	e	1	100/10,000
79-19-6	Thiosemicarbazide		100	100/10,000
79-21-0	Peracetic Acid	e	1	500
79-22-1	Methyl Chloroformate	d, h	1,000	500

APPENDIX B TO PART 355—THE LIST OF EXTREMELY HAZARDOUS SUBSTANCES AND THEIR THRESHOLD PLANNING QUANTITIES—Continued

[CAS Number Order]

CAS No.	Chemical name	Notes	Reportable quantity* (pounds)	Threshold planning quantity (pounds)
80-63-7	Methyl 2-Chloroacrylate	e	1	500
81-81-2	Warfarin		100	500/10,000
82-66-6	Diphacinone	e	1	10/10,000
86-50-0	Azinphos-Methyl		1	10/10,000
86-88-4	ANTU		100	500/10,000
88-05-1	Aniline, 2,4,6-Trimethyl-	e	1	500
88-85-7	Dinoseb		1,000	100/10,000
91-08-7	Toluene 2,6-Diisocyanate		100	100
95-48-7	Cresol, o-	d	1,000	1,000/10,000
98-05-5	Benzenearsonic Acid	e	1	10/10,000
98-07-7	Benzotrichloride	d	10	500
98-13-5	Trichlorophenylsilane	e, h	1	500
98-16-8	Benzenamine, 3-(Trifluoromethyl)-	e	1	500
98-87-3	Benzal Chloride	d	5,000	500
98-95-3	Nitrobenzene	l	1,000	10,000
99-98-9	Dimethyl-p-Phenylenediamine	e	1	10/10,000
100-14-1	Benzene, 1-(Chloromethyl)-4-Nitro-	e	1	500/10,000
100-44-7	Benzyl Chloride	d	100	500
102-36-3	Isocyanic Acid, 3,4-Dichlorophenyl Ester	e	1	500/10,000
103-85-5	Phenylthiourea		100	100/10,000
106-89-8	Epichlorohydrin	d,l	100	1,000
106-96-7	Propargyl Bromide	e	1	10
107-02-8	Acrolein		1	500
107-07-3	Chloroethanol	e	1	500
107-11-9	Allylamine	e	1	500
107-12-0	Propionitrile		10	500
107-13-1	Acrylonitrile	d, l	100	10,000
107-15-3	Ethylenediamine		5,000	10,000
107-16-4	Formaldehyde Cyanohydrin	e, h	1	1,000
107-18-6	Allyl Alcohol		100	1,000
107-30-2	Chloromethyl methyl ether	e,d	10	100
107-44-8	Sarin	e, h	1	10
107-49-3	TEPP		10	100
108-05-4	Vinyl Acetate Monomer	d, l	5,000	1,000
108-23-6	Isopropyl Chloroformate	e	1	1,000
108-91-8	Cyclohexylamine	e, l	1	10,000
108-95-2	Phenol		1,000	500/10,000
108-98-5	Thiophenol		100	500
109-61-5	Propyl Chloroformate	e	1	500
109-77-3	Malononitrile		1,000	500/10,000
110-00-9	Furan		100	500
110-57-6	Trans-1,4-Dichlorobutene	e	1	500
110-89-4	Piperidine	e	1	1,000
111-44-4	Dichloroethyl ether	d	10	10,000
111-69-3	Adiponitrile	e, l	1	1,000
115-21-9	Trichloroethylsilane	e, h	1	500
115-26-4	Dimefox	e	1	500
115-29-7	Endosulfan		1	10/10,000
115-90-2	Fensulfothion	e, h	1	500
116-06-3	Aldicarb	c	1	100/10,000
119-38-0	Isopropylmethylpyrazolyl Dimethylcarbamate	e	1	500
122-14-5	Fenitrothion	e	1	500
123-31-9	Hydroquinone	l	1	500/10,000
123-73-9	Crotonaldehyde, (E)-		100	1,000
124-65-2	Sodium Cacodylate	e	1	100/10,000
124-87-8	Picrotoxin	e	1	500/10,000
126-98-7	Methacrylonitrile	h	1,000	500
129-00-0	Pyrene	c	5,000	1,000/10,000
129-06-6	Warfarin sodium	e,h	100	100/10,000
140-29-4	Benzyl Cyanide	e, h	1	500
140-76-1	Pyridine, 2-Methyl-5-Vinyl-	e	1	500
141-66-2	Dicrotophos	e	1	100
143-33-9	Sodium Cyanide (Na(CN))	b	10	100
144-49-0	Fluoroacetic Acid	e	1	10/10,000
149-74-6	Dichloromethylphenylsilane	e	1	1,000
151-38-2	Methoxyethylmercuric Acetate	e	1	500/10,000
151-50-8	Potassium Cyanide	b	10	100
151-56-4	Ethyleneimine	d	1	500

APPENDIX B TO PART 355—THE LIST OF EXTREMELY HAZARDOUS SUBSTANCES AND THEIR THRESHOLD PLANNING QUANTITIES—Continued

[CAS Number Order]

CAS No.	Chemical name	Notes	Reportable quantity* (pounds)	Threshold planning quantity (pounds)
152-16-9	Diphosphoramide, Octamethyl-		100	100
297-78-9	Isobenzan	e	1	100/10,000
297-97-2	Thionazin		100	500
298-00-0	Parathion-Methyl	c	100	100/10,000
298-02-2	Phorate		10	10
298-04-4	Disulfoton		1	500
300-62-9	Amphetamine	e	1	1,000
302-01-2	Hydrazine	d	1	1,000
309-00-2	Aldrin	d	1	500/10,000
315-18-4	Mexacarbate		1,000	500/10,000
316-42-7	Emetine, Dihydrochloride	e, h	1	1/10,000
327-98-0	Trichloronate	e, k	1	500
353-42-4	Boron Trifluoride Compound With Methyl Ether (1:1)	e	1	1,000
359-06-8	Fluoroacetyl Chloride	c, e	1	10
371-62-0	Ethylene Fluorohydrin	c, e, h	1	10
379-79-3	Ergotamine Tartrate	e	1	500/10,000
465-73-6	Isodrin		1	100/10,000
470-90-6	Chlorfenvinfos	e	1	500
502-39-6	Methylmercuric Dicyanamide	e	1	500/10,000
504-24-5	Pyridine, 4-Amino-	h	1,000	500/10,000
505-60-2	Mustard Gas	e, h	1	500
506-61-6	Potassium Silver Cyanide	b	1	500
506-68-3	Cyanogen Bromide		1,000	500/10,000
506-78-5	Cyanogen Iodide	e	1	1,000/10,000
509-14-8	Tetranitromethane		10	500
514-73-8	Dithiazanine Iodide	e	1	500/10,000
534-07-6	Bis(Chloromethyl) Ketone	e	1	10/10,000
534-52-1	Dinitrocresol		10	10/10,000
535-89-7	Crimidine	e	1	100/10,000
538-07-8	Ethylbis(2-Chloroethyl)Amine	e, h	1	500
541-25-3	Lewisite	c, e, h	1	10
541-53-7	Dithiobiuret		100	100/10,000
542-76-7	Propionitrile, 3-Chloro-		1,000	1,000
542-88-1	Chloromethyl ether	d,h	10	100
542-90-5	Ethylthiocyanate	e	1	10,000
555-77-1	Tris(2-Chloroethyl)Amine	e, h	1	100
556-61-6	Methyl Isothiocyanate	b, e	1	500
556-64-9	Methyl Thiocyanate	e	1	10,000
558-25-8	Methanesulfonyl Fluoride	e	1	1,000
563-12-2	Ethion		10	1,000
563-41-7	Semicarbazide Hydrochloride	e	1	1,000/10,000
584-84-9	Toluene 2,4-Diisocyanate		100	500
594-42-3	Perchloromethylmercaptan		100	500
597-64-8	Tetraethyltin	c, e	1	100
614-78-8	Thiourea, (2-Methylphenyl)-	e	1	500/10,000
624-83-9	Methyl Isocyanate		10	500
627-11-2	Chloroethyl Chloroformate	e	1	1,000
630-60-4	Ouabain	c, e	1	100/10,000
639-58-7	Triphenyltin Chloride	e	1	500/10,000
640-19-7	Fluoroacetamide	j	100	100/10,000
644-64-4	Dimetilan	e	1	500/10,000
675-14-9	Cyanuric Fluoride	e	1	100
676-97-1	Methyl Phosphonic Dichloride	b, e	1	100
696-28-6	Phenyl Dichloroarsine	d, h	1	500
732-11-6	Phosmet	e	1	10/10,000
760-93-0	Methacrylic Anhydride	e	1	500
786-19-6	Carbophenothion	e	1	500
814-49-3	Diethyl Chlorophosphate	e, h	1	500
814-68-6	Acrylyl Chloride	e, h	1	100
824-11-3	Trimethylolpropane Phosphite	e, h	1	100/10,000
900-95-8	Stannane, Acetoxytriphenyl-	e, g	1	500/10,000
919-86-8	Demeton-S-Methyl	e	1	500
920-46-7	Methacryloyl Chloride	e	1	100
944-22-9	Fonofos	e	1	500
947-02-4	Phosfolan	e	1	100/10,000
950-10-7	Mephosfolan	e	1	500
950-37-8	Methidathion	e	1	500/10,000
991-42-4	Norbormide	e	1	100/10,000

APPENDIX B TO PART 355—THE LIST OF EXTREMELY HAZARDOUS SUBSTANCES AND THEIR THRESHOLD PLANNING QUANTITIES—Continued

[CAS Number Order]

CAS No.	Chemical name	Notes	Reportable quantity* (pounds)	Threshold planning quantity (pounds)
998-30-1	Triethoxysilane	e	1	500
999-81-5	Chlormequat Chloride	e, h	1	100/10,000
1031-47-6	Triamiphos	e	1	500/10,000
1066-45-1	Trimethyltin Chloride	e	1	500/10,000
1122-60-7	Nitrocyclohexane	e	1	500
1124-33-0	Pyridine, 4-Nitro-, 1-Oxide	e	1	500/10,000
1129-41-5	Metolcarb	e	1	100/10,000
1303-28-2	Arsenic pentoxide	d	1	100/10,000
1306-19-0	Cadmium Oxide	e	1	100/10,000
1314-56-3	Phosphorus Pentoxide	b, e	1	10
1314-62-1	Vanadium Pentoxide		1,000	100/10,000
1314-84-7	Zinc Phosphide	b	100	500
1327-53-3	Arsenous oxide	d,h	1	100/10,000
1397-94-0	Antimycin A	c, e	1	1,000/10,000
1420-07-1	Dinoterb	e	1	500/10,000
1464-53-5	Diepoxybutane	d	10	500
1558-25-4	Trichloro(Chloromethyl)Silane	e	1	100
1563-66-2	Carbofuran		10	10/10,000
1600-27-7	Mercuric Acetate	e	1	500/10,000
1622-32-8	Ethanesulfonyl Chloride, 2-Chloro-	e	1	500
1642-54-2	Diethylcarbamazine Citrate	e	1	100/10,000
1752-30-3	Acetone Thiosemicarbazide	e	1	1,000/10,000
1910-42-5	Paraquat	e	1	10/10,000
1982-47-4	Chloroxuron	e	1	500/10,000
2001-95-8	Valinomycin	c, e	1	1,000/10,000
2032-65-7	Methiocarb		10	500/10,000
2074-50-2	Paraquat Methosulfate	e	1	10/10,000
2097-19-0	Phenylsilatrane	e, h	1	100/10,000
2104-64-5	EPN	e	1	100/10,000
2223-93-0	Cadmium Stearate	c, e	1	1,000/10,000
2231-57-4	Thiocarbazide	e	1	1,000/10,000
2238-07-5	Diglycidyl Ether	e	1	1,000
2275-18-5	Prothoate	e	1	100/10,000
2497-07-6	Oxydisulfoton	e, h	1	500
2524-03-0	Dimethyl Phosphorochloridothioate	e	1	500
2540-82-1	Formothion	e	1	100
2570-26-5	Pentadecylamine	e	1	100/10,000
2587-90-8	Phosphorothioic Acid, O,O-Dimethyl-S-(2-Methylthio) Ethyl Ester	c, e, g	1	500
2631-37-0	Promecarb	e, h	1	500/10,000
2636-26-2	Cyanophos	e	1	1,000
2642-71-9	Azinphos-Ethyl	e	1	100/10,000
2665-30-7	Phosphonothioic Acid, Methyl-,O-(4-Nitrophenyl) O-Phenyl Ester	e	1	500
2703-13-1	Phosphonothioic Acid, Methyl-,O-Ethyl O-(4-(Methylthio)Phenyl) Ester	e	1	500
2757-18-8	Thallous Malonate	c, e, h	1	100/10,000
2763-96-4	Muscimol		1,000	500/10,000
2778-04-3	Endothion	e	1	500/10,000
3037-72-7	Silane, (4-Aminobutyl)Diethoxymethyl-	e	1	1,000
3254-63-5	Phosphoric Acid, Dimethyl 4-(Methylthio) Phenyl Ester	e	1	500
3569-57-1	Sulfoxide, 3-Chloropropyl Octyl	e	1	500
3615-21-2	Benzimidazole, 4,5-Dichloro-2-(Trifluoromethyl)-	e, g	1	500/10,000
3689-24-5	Sulfotep		100	500
3691-35-8	Chlorophacinone	e	1	100/10,000
3734-97-2	Amiton Oxalate	e	1	100/10,000
3735-23-7	Methyl Phenkapton	e	1	500
3878-19-1	Fuberidazole	e	1	100/10,000
4044-65-9	Bitoscanate	e	1	500/10,000
4098-71-9	Isophorone Diisocyanate	b, e	1	100
4104-14-7	Phosacetim	e	1	100/10,000
4170-30-3	Crotonaldehyde		100	1,000
4301-50-2	Fluenetil	e	1	100/10,000
4418-66-0	Phenol, 2,2'-Thiobis(4-Chloro-6-Methyl)-	e	1	100/10,000
4835-11-4	Hexamethylenediamine, N,N'-Dibutyl-	e	1	500
5344-82-1	Thiourea, (2-Chlorophenyl)-		100	100/10,000
5836-29-3	Coumatetralyl	e	1	500/10,000
6533-73-9	Thallous Carbonate	c, h	100	100/10,000
6923-22-4	Monocrotophos	e	1	10/10,000
7446-09-5	Sulfur Dioxide	e, l	1	500

APPENDIX B TO PART 355—THE LIST OF EXTREMELY HAZARDOUS SUBSTANCES AND THEIR THRESHOLD PLANNING QUANTITIES—Continued

[CAS Number Order]

CAS No.	Chemical name	Notes	Reportable quantity* (pounds)	Threshold planning quantity (pounds)
7446-11-9	Sulfur Trioxide	b, e	1	100
7446-18-6	Thallous Sulfate		100	100/10,000
7487-94-7	Mercuric Chloride	e	1	500/10,000
7550-45-0	Titanium Tetrachloride	e	1	100
7580-67-8	Lithium Hydride	b, e	1	100
7631-89-2	Sodium Arsenate	d	1,000	1,000/10,000
7637-07-2	Boron Trifluoride	e	1	500
7647-01-0	Hydrogen chloride	e,l	5,000	500
7664-39-3	Hydrogen Fluoride		100	100
7664-41-7	Ammonia	l	100	500
7664-93-9	Sulfuric Acid		1,000	1,000
7697-37-2	Nitric Acid		1,000	1,000
7719-12-2	Phosphorus Trichloride		1,000	1,000
7722-84-1	Hydrogen Peroxide (Conc >52%)	e, l	1	1,000
7723-14-0	Phosphorus	b, h	1	100
7726-95-6	Bromine	e, l	1	500
7778-44-1	Calcium arsenate	d	1	500/10,000
7782-41-4	Fluorine	k	10	500
7782-50-5	Chlorine		10	100
7783-00-8	Selenious Acid		10	1,000/10,000
7783-06-4	Hydrogen Sulfide	l	100	500
7783-07-5	Hydrogen Selenide	e	1	10
7783-60-0	Sulfur Tetrafluoride	e	1	100
7783-70-2	Antimony Pentafluoride	e	1	500
7783-80-4	Tellurium Hexafluoride	e, k	1	100
7784-34-1	Arsenous trichloride	d	1	500
7784-42-1	Arsine	e	1	100
7784-46-5	Sodium arsenite	d	1	500/10,000
7786-34-7	Mevinphos		10	500
7791-12-0	Thallous Chloride	c, h	100	100/10,000
7791-23-3	Selenium Oxychloride	e	1	500
7803-51-2	Phosphine		100	500
8001-35-2	Camphechlor	d	1	500/10,000
8065-48-3	Demeton	e	1	500
10025-73-7	Chromic Chloride	e	1	1/10,000
10025-87-3	Phosphorus Oxychloride	d	1,000	500
10026-13-8	Phosphorus Pentachloride	b, e	1	500
10028-15-6	Ozone	e	1	100
10031-59-1	Thallium Sulfate	h	100	100/10,000
10102-18-8	Sodium Selenite	h	100	100/10,000
10102-20-2	Sodium Tellurite	e	1	500/10,000
10102-43-9	Nitric Oxide	c	10	100
10102-44-0	Nitrogen Dioxide		10	100
10124-50-2	Potassium arsenite	d	1	500/10,000
10140-87-1	Ethanol, 1,2-Dichloro-, Acetate	e	1	1,000
10210-68-1	Cobalt Carbonyl	e, h	1	10/10,000
10265-92-6	Methamidophos	e	1	100/10,000
10294-34-5	Boron Trichloride	e	1	500
10311-84-9	Dialifor	e	1	100/10,000
10476-95-6	Methacrolein Diacetate	e	1	1,000
12002-03-8	Paris Green	d	1	500/10,000
12108-13-3	Manganese, Tricarbonyl Methylcyclopentadienyl	e, h	1	100
13071-79-9	Terbufos	e, h	1	100
13171-21-6	Phosphamidon	e	1	100
13194-48-4	Ethoprophos	e	1	1,000
13410-01-0	Sodium Selenate	e	1	100/10,000
13450-90-3	Gallium Trichloride	e	1	500/10,000
13463-39-3	Nickel carbonyl	d	10	1
13463-40-6	Iron, Pentacarbonyl	e	1	100
13494-80-9	Tellurium	e	1	500/10,000
14167-18-1	Salcomine	e	1	500/10,000
15271-41-7	Bicyclo[2.2.1]Heptane-2-Carbonitrile, 5-Chloro-6-(((Methylamino)Carbonyl)Oxy)Imino)-, (1s-(1-alpha, 2-beta, 4-alpha, 5-alpha, 6E))-	e	1	500/10,000
16752-77-5	Methomyl	h	100	500/10,000
17702-41-9	Decaborane(14)	e	1	500/10,000
17702-57-7	Formparanate			

APPENDIX B TO PART 355—THE LIST OF EXTREMELY HAZARDOUS SUBSTANCES AND THEIR THRESHOLD PLANNING QUANTITIES—Continued

[CAS Number Order]

CAS No.	Chemical name	Notes	Reportable quantity* (pounds)	Threshold planning quantity (pounds)
19624-22-7	Pentaborane	e	1	500
20830-75-5	Digoxin	e, h	1	10/10,000
20859-73-8	Aluminum Phosphide	b	100	500
21548-32-3	Fosthietan	e	1	500
21609-90-5	Leptophos	e	1	500/10,000
21908-53-2	Mercuric Oxide	e	1	500/10,000
21923-23-9	Chlorthiophos	e, h	1	500
22224-92-6	Fenamiphos	e	1	10/10,000
23135-22-0	Oxamyl	e	1	100/10,000
23422-53-9	Formetanate Hydrochloride	e,h	1	500/10,000
23505-41-1	Pirimifos-Ethyl	e	1	1,000
24017-47-8	Triazofos	e	1	500
24934-91-6	Chlormephos	e	1	500
26419-73-8	Carbamic Acid, Methyl-, O-(((2,4-Dimethyl-1, 3-Dithiolan-2-yl)Methylene)Amino)-	e	1	100/10,000
26628-22-8	Sodium Azide (Na(N$_3$))	b	1,000	500
27137-85-5	Trichloro(Dichlorophenyl)Silane	e	1	500
28347-13-9	Xylylene Dichloride	e	1	100/10,000
28772-56-7	Bromadiolone	e	1	100/10,000
30674-80-7	Methacryloyloxyethyl Isocyanate	e, h	1	100
39196-18-4	Thiofanox		100	100/10,000
50782-69-9	Phosphonothioic Acid, Methyl-, S-(2-(Bis(1-Methylethyl)Amino)Ethyl) O-Ethyl Ester	e	1	100
53558-25-1	Pyriminil	e, h	1	100/10,000
58270-08-9	Zinc, Dichloro(4,4-Dimethyl-5((((Methylamino)Carbonyl)Oxy)Imino)Pentanenitrile)-, (T-4)-	e	1	100/10,000
62207-76-5	Cobalt, ((2,2'-(1,2-Ethanediylbis(Nitrilomethylidyne))Bis(6-Fluorophenolato))(2-)-N,N',O,O')-	e	1	100/10,000

*Only the statutory or final RQ is shown. For more information, see 40 CFR Table 302.4.

Notes:

a This chemical does not meet acute toxicity criteria. Its TPQ is set at 10,000 pounds.
b This material is a reactive solid. The TPQ does not default to 10,000 pounds for non-powder, non-molten, non-solution form.
c The calculated TPQ changed after technical review as described in the technical support document.
d Indicates that the RQ is subject to change when the assessment of potential carcinogenicity and/or other toxicity is completed.
e Statutory reportable quantity for purposes of notification under SARA sect 304(a)(2).
f [Reserved]
g New chemicals added that were not part of the original list of 402 substances.
h Revised TPQ based on new or re-evaluated toxicity data.
j TPQ is revised to its calculated value and does not change due to technical review as in proposed rule.
k The TPQ was revised after proposal due to calculation error.
l Chemicals on the original list that do not meet the toxicity criteria but because of their high production volume and recognized toxicity are considered chemicals of concern ("Other chemicals").

[52 FR 13395, Apr. 22, 1987; 52 FR 15412, Apr. 28, 1987; 52 FR 48073–48074, Dec. 17, 1987; 53 FR 5575, Feb. 25, 1988; 54 FR 43165, Oct. 20, 1989; 54 FR 53064, Dec. 27, 1989; 55 FR 5546, Feb. 15, 1990; 58 FR 35330, June 30, 1993]

EXHIBIT I

Private Party Cost Recovery Actions in the Wake of KFC Western v. Meghrig *and Other Recent Developments*

by

Michael O. Hill*

Introduction

Developments in case law and proposed legislation over the past year have sharply limited or otherwise threatened private parties' ability to recover their cleanup costs under the Comprehensive Environmental Response, Compensation and Liability Act ("CERCLA" or "Superfund"). Among other developments, three circuits have held that parties who are potentially liable under CERCLA cannot seek cost recovery under CERCLA § 107, but are limited to § 113;[1] the Supreme Court has barred the recovery of attorneys' fees;[2] and Congress has threatened to end liability for pre-CERCLA conduct, thus jeopardizing plaintiffs' ability to bring contribution claims based on such conduct.

Last March, however, the Ninth Circuit virtually created a new cause of action for cost recovery, ruling that private parties may in some circumstances recover cleanup costs under § 7002 of the Resource Conservation and Recovery Act ("RCRA"). *KFC Western v. Meghrig*, 49 F.3d 518 (9th Cir. 1995), *petition for cert. filed*,__U.S.L.W.__(U.S. July 13, 1995) (No. 95-83).

This article discusses these changes and suggests various criteria that private parties must now consider in the context of cost recovery claims. In particular, after discussing generally the changing terrain upon which these claims may be brought, it summarizes the *KFC* decision and suggests various substantive and procedural criteria that plaintiffs should consider in deciding whether, or when, to file claims under CERCLA, RCRA, or (to a limited extent) state common law theories, and that defendants should consider when confronting such claims.

Discussion

I. Private Parties' Ability To Recover Costs Under CERCLA Has Been Substantially Undermined Over the Past Year

A. The Availability of Contribution Actions Has Historically Been Used To Justify the Imposition of Joint and Several Liability Under CERCLA

Since CERCLA's inception in 1980, courts have consistently held that parties who are liable under CERCLA § 107(a) are, for the most part, jointly and severally liable.[3] Defendants found liable under § 107(a) could avoid joint and several liability only if they could establish that the harm they had caused was divisible from other harm at the site. *Id.* This burden has proven difficult for defendants to meet. Thus, in most cases, individual defendants have been held jointly and severally liable for all response costs at CERCLA sites.

As originally enacted, CERCLA contained no express provision authorizing contribution actions.[4] With virtual uniformity, however, courts interpreted the statute to impliedly authorize such a cause of action. *See Key Tronic Corp. v. U.S.*,__U.S.__, 114 S. Ct. 1960, 1965 & n.7 (1994) (citing cases).

In amending CERCLA in 1986, Congress expressly created a cause of action for contribution, by creating the new § 113(f)(1). 42 U.S.C. § 9613(f)(1) ("Any person may seek contribution from any other person who is liable or potentially liable under § [1]07(a) of this title . . . ."); *see* S. Rep. No. 11, 99th Cong., 1st Sess. 44 (1985), *reprinted in* 2 Legislative History of Superfund

Amendments and Reauthorization Act of 1986, sp. Print 101-120 (101st Cong., 2d Sess.) (1990) (§ 113(f) "clarif[ies] and confirm[s] the right of a person held jointly and severally liable under CERCLA to seek contribution from other potentially liable parties . . . .").

Ordinarily, government enforcement efforts have focused on fewer than all of the parties who are potentially responsible for response costs at a particular site. Significantly, much of the stated justification for this approach was that it would be unduly burdensome to require the government to pursue every potentially responsible party ("PRP"), and the PRPs who were found liable would be free to recover response costs from other PRPs (both named and unnamed) through contribution actions. *See United States v. Kramer*, 770 F. Supp. 954, 957-58 & n.4 (D.N.J. 1991) (citing Environmental Protection Agency ("EPA") and Department of Justice proposal in severing the trial of third-party claims from claims brought by EPA).

Over the past year, however, developing case law has substantially undermined PRPs' ability to recover their costs through CERCLA contribution actions, as set forth below.

B. Three Circuits Have Held That § 107 Claims Are Unavailable To PRPs, Thus Affecting the Limitations Period As Well As the Scope of Liability and the Burden of Proof in Contribution Actions

Significantly, the attorneys' fees claim in *Key Tronic* (see *supra* at note 2 and *infra* at section I(C)), was brought under CERCLA § 107. 114 S. Ct. at 1963. And the plaintiff—a prior owner of the site—was a PRP who had settled with the state and EPA. *Id.* In upholding the claim for at least some of plaintiff's costs, the Supreme Court thus implicitly recognized a cause of action for PRPs under § 107, at least for costs that the Court deemed otherwise recoverable. *Cf. id.* at 1967 (CERCLA now expressly authorizes a cause of action for contribution in § 113, and impliedly authorizes a similar and somewhat overlapping remedy in § 107). Lower courts had made similar determination prior to *Key Tronic.*[5]

In the year since the *Key Tronic* decision, however, the First, Seventh and Tenth Circuit Courts of Appeals have each concluded that § 107 claims are generally not available to PRPs. *United States v. Colorado & Eastern R.R. Co.*, 50 F.3d 1530, 1534 (10th Cir. 1995) ("cost recovery between PRPs . . . is a claim for contribution under § 113(f)"); *United Technologies Corp. v. Browning-Ferris Indus., Inc.*, 33 F.3d 96, 99-103 (1st Cir. 1994) (actions between PRPs are governed by § 113(f)), *cert. denied*,__U.S.__, 115 S. Ct. 1176 (1995);[6] *Akzo Coatings, Inc. v. Aigner Corp.*, 30 F.3d 761, 764 (7th Cir. 1994) ("claims . . . between jointly and severally liable parties are "governed by § 113(f)"). These rulings impair private plaintiffs' ability to recover their costs under CERCLA in at least three respects:

First, plaintiffs will generally have less time in which to bring suit, due to the shorter limitations period for § 113 actions than for those under § 107. *United Technologies*, 50 F.3d at 103 (dismissing cost recovery claim because it was brought beyond the limitations period applicable to § 113 actions, even though within the period for § 107 actions). *Compare* CERCLA § 113(g)(2) (§ 107 actions generally must be commenced within 3 years after completion of a removal action, or within 6 years after initiation of on-site construction of the remedial action), *with* § 113(g)(3) (contribution actions for costs or damages must be commenced within 3 years after the date of judgment in an action for recovery of such costs or damages, or the date of a consent decree or administrative order on consent).

Second, § 113 plaintiffs do not enjoy the benefits of § 107's scheme of joint and several liability. As discussed above, under § 107, defendants may avoid liability for all site response costs only by meeting their burden of establishing divisibility of harm. With § 113, by contrast, plaintiffs bear the burden of establishing individual defendants' appropriate shares. *Colorado & Eastern*, 50 F.3d at 1536 (10th Cir. 1995) (Under § 113, "'the burden of proof is on the . . . party seeking apportionment to establish that it should be granted.'").[7]

Finally, at least some courts have reasoned that § 113 defendants do not risk incurring liability for

"orphan shares" (e.g., shares attributable to parties who are not financially viable, or who for any of several reasons are not present in the litigation), thus leaving the § 113 plaintiff to assume those shares. *See Allied Corp. v. Acme Solvents Reclaiming, Inc.*, 691 F. Supp. 1100, 1118 (N.D. Ill. 1988) ("A prohibition against joint and several liability would leave the willing PRP holding the bag for insolvent companies.").[8] Parties may argue, however, that because § 113(f)(1) instructs courts to apportion liability in contribution using such "equitable factors as the court determines are appropriate," courts are free to allocate § 113 defendants some part of the orphan shares.

C. Attorneys' Fees Are Now Ordinarily Not Available to Private Parties Under CERCLA

In June of 1994, the Supreme Court ruled that private parties may not ordinarily sue under CERCLA to recover their attorneys' fees. *Key Tronic*, 114 S. Ct. at 1967-68.

The only exception to this broad prohibition is for "lawyers' work that is closely tied to the cleanup," because the fees for such work may themselves "constitute a necessary cost of response" within the meaning of CERCLA § 107(a)(4)(B). *Id.* at 1967. The Court ruled that attorneys' work "performed in identifying other [PRPs] falls in this category" of recoverable costs, but that fees for prosecuting contribution claims and negotiating a settlement with EPA do not. *Id.* at 1963, 1967-68.

As such, the Court left little hope that private parties would recover anything more than a small fraction of their litigation costs under CERCLA.

D. Amendment of CERCLA May Undermine Private Plaintiffs' Ability To Recover Costs From Parties Who Would Otherwise Be Liable Because of Their Pre-CERCLA Activities

During 1994 and again this year, there has been significant effort to amend CERCLA in numerous respects. Among the more substantial changes that have been proposed are those that would end retroactive liability, barring recovery against parties for activities (or ownership) that occurred entirely prior to the enactment of CERCLA in 1980 (or possibly prior to its 1986, "SARA"[9] amendments).[10]

It is, of course, unclear whether these proposals will become law. Still less clear is what effect they would have on parties who have already incurred response costs for pre-enactment activities (or ownership). For example, would those parties be able to bring cost recovery claims against other parties whose activities (or ownership) were also limited to the pre-enactment period? The answer will depend upon the legislation (if any) and, possibly, upon courts' interpretation of the legislation. At a minimum, however, the existence of these proposals places in some doubt the strength, and in some cases even the viability, of contribution claims.

II. Under *KFC v. Meghrig* (9th Cir. 1995), Private Parties' Costs May Be Recoverable Under RCRA § 7002

Against this background of dwindling contribution rights under CERCLA, last March the Ninth Circuit held in favor of a private plaintiff under what is, in effect, a new cause of action for cost recovery, pursuant to § 7002 of RCRA, 42 U.S.C. § 6972. *KFC Western v. Meghrig*, 49 F.3d 518 (9th Cir. 1995).

The relevant facts of *KFC* are fairly straightforward. In 1975, KFC Western ("KFC") purchased property that had been contaminated with petroleum products. Thirteen years later, KFC discovered the contamination and, soon thereafter, complied with an order from the Los Angeles Department of Health Services to remediate the property.

Following the completion of the cleanup, KFC sued the sellers (the Meghrigs) for recovery of its cleanup costs. KFC sued under RCRA § 7002, presumably because relief was not available under CERCLA (due to its "petroleum exclusion")[11] or under state common law (due to various state law defenses, including statutes of limitations).

Specifically, KFC sued under RCRA § 7002(a)(1)(B), which applies where site owners,

operators, generators or transporters have contributed to or are contributing to the handling of solid or hazardous wastes that may present an imminent and substantial endangerment to health or the environment.[12] The statute provides that, under such circumstances, courts may, among other remedies, enter an order "to restrain" the contributing defendant(s) and/or "to order such person to take such other action as may be necessary." 42 U.S.C. § 6972(a).

The district court granted defendants' motion to dismiss, but the Ninth Circuit reversed. In a nutshell, the Ninth Circuit ruled as follows:

> (1) *Relief under Section 7002(a) may include recovery of response costs*, and not just an injunction to bring an end to the endangerment; and
>
> (2) Section 7002(a)(1)(B)'s requirement that a plaintiff establish that the defendant contributed to an imminent and substantial endangerment, limits the reach of RCRA "'to sites where the potential for harm is great,'" but it does not limit the time for filing an action.[13] In other words, as long as they can establish that their costs were directed toward an "imminent and substantial endangerment," *plaintiffs need not establish that the endangerment still existed at the time that the lawsuit was commenced.*

KFC, 49 F.3d at 521.

Although both of these rulings had previously been applied to government enforcement actions, brought under RCRA § 7003,[14] the *KFC* decision is the first to extend either ruling to actions by private plaintiffs under § 7002.[15]

In reaching its conclusion, the *KFC* court rejected the reasoning of several district courts[16] as well as that set forth in a vigorous dissent. 49 F.3d at 523-28. The merits of the *KFC* decision are beyond the scope of this article. Rather, this article is intended solely to suggest factors to consider—both as a plaintiff and as a defendant—in the context of contribution or other actions to recover cleanup costs.

III. Factors To Consider in the Wake of the *KFC* Decision

It is possible that the *KFC* decision will have little impact. Limited to its facts, it would apply only to plaintiffs who are entirely "innocent" (i.e who did not contribute in any way to th contamination).[17] In addition, because it is, i effect, an equitable remedy, the Court's rulin might be applied only to plaintiffs who otherwis would have no remedy: The Ninth Circuit wen out of its way to note that KFC fell in tha category. 49 F.3d at 523 n.6.

Moreover, *KFC*'s reasoning may be rejecte outside the Ninth Circuit, as it was rejected by th *KFC* dissent and had previously been rejected b several district courts, as noted above. *See* not 16.

Finally, it is possible that *KFC* will be reverse on appeal—a petition for Supreme Court review i pending, having been filed on July 13. *See supra* at 454.

For now, however, the *KFC* decision remain "good law" and, as such, it must be considere both by plaintiffs and defendants in the context o contribution actions. Although *KFC* present many opportunities for private plaintiffs, it present risks as well, and it contains substantive and procedural hurdles that are not present in the context of CERCLA and state common law claims. The remainder of this article addresses those opportunities, risks, and other factors.

A. RCRA Contains a Cost-Shifting Provision for Attorneys' Fees and Other Litigation Costs

A potential benefit, and pitfall, for private parties suing under § 7002 is its cost-shifting provision. This provision states that:

> The court . . . may award costs of litigation (including reasonable attorney and expert witness fees) to the \prevailing or substantially prevailing party, whenever the court determines such an award is appropriate.

§ 7002(e), 42 U.S.C. § 6972(e) (emphasis added).

The potential benefit to a private plaintiff, of course, is that if it prevails (or substantially prevails) under § 7002, it may recover its litigation

costs, including attorney and expert witness fees. In the wake of the *Key Tronic* decision, discussed above, such a possibility no longer exists in a CERCLA action—other than through Fed. R. Civ. P. 54(d), the rarely applied cost-shifting provision applicable to federal court claims generally.

On the other hand, private plaintiffs risk being required to pay defendants' costs. Under the plain language of § 7002(e), in the event that a defendant prevails (or substantially prevails), a court may require the plaintiff to pay the defendant's costs.

Thus, private plaintiffs must weigh the merits of their claims heavily prior to filing under § 7002.

B. RCRA § 7002(a)(1)(B) Requires a Showing That the Defendant Contributed or Is Contributing to an Imminent and Substantial Endangerment

The chance that a defendant may prevail, or substantially prevail, is significant under RCRA § 7002(a), in large part because of two substantive requirements:

First, plaintiffs suing under RCRA § 7002(a)(1)(B) must prove that their costs were directed toward an "imminent and substantial endangerment to health or the environment."[18] By contrast, CERCLA requires merely that the costs be directed toward a "release, or threatened release." CERCLA § 107(a)(4).[19]

Second, § 7002(a)(1)(B) plaintiffs must show a causal connection between the endangerment and the defendant's actions. § 7002(a)(1)(B); *United States v. Hardage*, 116 F.R.D. 460, 466 (W.D. Okla. 1987).[20] Comparison between this provision and CERCLA in the contribution context is a bit tricky. To establish liability under § 113(f), a CERCLA plaintiff must first establish that a defendant falls within the category of persons who are "liable or potentially liable under section [1]07(a)." § 113(f)(1). To establish § 107(a) "liability," a CERCLA plaintiff need only show that its costs were caused by a release or threatened release; it need *not* show that a particular defendants' wastes contributed to those costs.[21] Yet at least one court has held that a showing of § 107 liability is not enough to create liability under § 113, and that a plaintiff must also show that the defendant caused the contamination. *Farmland Indus. v. Morrison-Quirk Grain Corp.*, 987 F.2d 1335, 1340 (8th Cir. 1993) ("a private party cannot predicate a claim for contribution or indemnity solely upon § [1]07(a) liability to the government, but must also prove causation."). Because, under § 113(f), any assessment of damages against a defendant will depend upon "such equitable factors as the court determines are appropriate," whether there is a "cause" requirement in CERCLA contribution actions may be a largely theoretical distinction in most cases: If a § 113 defendant is deemed not to have caused the response costs at issue, it is unlikely that a court would assess any portion of the response costs against it.[22]

C. RCRA § 7002 Does Not Contain a Petroleum Exclusion, but Applies to All "Solid Wastes"

CERCLA applies only to wastes or other materials that meet CERCLA's definition of "hazardous substances," set forth in CERCLA § 101(14), 42 U.S.C. § 9601(14). One of CERCLA's most important limitations is that the term "hazardous substances" generally does not include "petroleum, including crude oil or any faction thereof." *Id.* Thus, where the contamination at issue consists of petroleum products (as in *KFC*) or other materials that do not qualify as "hazardous substances," CERCLA would provide no relief.

By contrast, RCRA § 7002 applies to all RCRA "solid wastes," a term that is very broadly defined to include any "garbage, refuse . . . and other discarded material, including solid, liquid, semisolid, or contained gaseous material resulting from industrial, commercial, mining, and agricultural operations, and from community activities . . . ." RCRA § 1004(27), 42 U.S.C. § 6903(27). Significantly, RCRA contains no petroleum exclusion. Moreover, RCRA claims may be directed not just to hazardous wastes,[23] but to any solid wastes, provided that the "handling, storage, treatment, transportation, or disposal" of those wastes may present, or (under *KFC*) may have presented, "an imminent and substantial endangerment."[24]

State common law theories, too, generally apply to petroleum products and other materials that might not qualify as CERCLA "hazardous substances," or even RCRA "solid wastes," provided that they create a nuisance, cause a trespass, or otherwise meet the elements of the state law claim.

Thus, it is entirely possible that RCRA, or state common law, will provide the only remedy for sites contaminated with petroleum products or other materials.

D. Unlike CERCLA or Common Law Claims, Any Cost Recovery Under RCRA Is Entirely Within the Court's Discretion

Even if *KFC*'s reasoning were to be broadly accepted by the courts, any recovery of costs is entirely within the discretion of the court.

KFC's award of costs was an equitable remedy, based on the statutory language permitting courts to order defendants to "take such other action as may be necessary . . . ." § 7002(a); *see KFC*, 49 F.3d at 521. Thus, in the event that a court does not deem such an award "necessary"—and the Ninth Circuit did not state what the costs must be necessary for—no award will be granted.

By contrast, an award of costs under CERCLA is not discretionary. Rather, provided that all of the other liability elements have been met, plaintiffs are entitled to recover CERCLA defendants' share of all costs that are "necessary" and "consistent with the national contingency plan." CERCLA § 107(a)(4)(B) (discussed further in Section III(E), below).

Similarly, the award of cleanup costs under common law claims is generally non-discretionary, but must be provided as ordinary damages.

In sum, because of the wide discretion left to courts in the context of § 7002 claims, private plaintiffs would likely want to avoid relying solely upon RCRA to recover their costs.

E. RCRA and State Common Law Actions Do Not Contain CERCLA's Requirement That Private Parties Show Their Costs Are Consistent With the National Contingency Plan

As noted above, CERCLA allows private parties to recover only those costs that are "necessary" and "consistent with the national contingency plan [or 'NCP']." CERCLA § 107(a)(4)(B); 40 C.F.R. pt. 300.

Whereas the government does not bear the burden of proof on this issue when it acts as a plaintiff, and whereas the standard in the context of a government claim is merely whether the costs are "not inconsistent with the NCP," private plaintiffs do bear the burden of proof, and they must establish that their costs are "consistent with the NCP."[25] Courts are split as to whether the issue of "consistency" goes to liability, or just damages.[26]

The burden of establishing consistency with the NCP was lightened somewhat on March 9, 1990, when the NCP was amended so that private parties need only show "substantial compliance" to recover their costs under CERCLA. 40 C.F.R. § 300.700(c)(3); *see Bolin v. Cessna Aircraft Co.*, 759 F. Supp. 692, 712, 21 Chem. Waste Litig. Rptr. 1086, 1104-06 (D. Kan. 1991). Thus, at least for costs incurred after that date,[27] CERCLA private party plaintiffs need only show "substantial compliance" with the NCP.

However, RCRA and state common law theories, by contrast, contain no requirement of compliance with the NCP. This should be noted particularly by private plaintiffs who would have difficulty establishing consistency with the NCP.

F. No Limitations Period Exists for Claims Brought Under RCRA § 7002

No limitations period exists for claims brought under RCRA § 7002. The *KFC* defendants pointed to the absence of such a period applicable to § 7002 claims to argue that there could be no such cause of action for recovery of past costs, because to allow one would be patently unfair to defendants. The court responded that the equitable

defense of laches would apply to untimely cases, thus avoiding circumstances that would be unfair to defendants. 49 F.3d at 522.

The absence of a limitations period has obvious advantages for plaintiffs whose claims are beyond the periods applicable to CERCLA actions (set forth in § 113(g)(3), and discussed above, in Section I(B)), or state law claims (which will vary depending on the jurisdiction and the claim, but which often are no longer than one to three years from the date of the "trespass," "negligence" or other misconduct at issue, regardless of when plaintiffs discover the misconduct or its effects).

On the other hand, CERCLA's limitations period for contribution actions are, at least in some instances, quite generous. For example, plaintiffs who are permitted to bring actions under CERCLA § 107[28] generally need not file claims for removal costs until three years after a removal action has been completed. § 113(g)(2)(A). And, if a remedial action is initiated within three years after the site removal action is completed, plaintiffs have up to six years from the initiation of physical on-site construction of the remedial action to bring claims for the remedial *and* the removal costs. § 113(g)(2)(B). Depending on the circumstances, this period could be longer than what might be barred by a court under the doctrine of laches.

State common law limitation periods, of course, vary from jurisdiction to jurisdiction and claim to claim. Parties must consider those periods, as well as CERCLA's, in deciding what theories to include in a contribution action.

G. CERCLA § 309 May Extend the Time By Which State Common Law Claims Must Be Filed, By Delaying the Dates Upon Which State Law Limitations Periods Begin To Run

CERCLA contains a rarely invoked provision, § 309, that may extend the time by which state common law claims must be filed, by delaying the dates upon which state law limitations periods begin to run (i.e., the "commencement dates").

Section 309(a)(1) provides that:

> *In the case of any action brought under State law* for personal injury, or property damages, which are caused or contributed to by exposure to any hazardous substance, or pollutant or contaminant, released into the environment from a facility, if the applicable limitations period for such action (as specified in the State statute of limitations or under common law) provides a *commencement date* which is earlier than the federally required commencement date, such period *shall commence at the federally required commencement date* in lieu of the date specified in such State statute.

42 U.S.C. § 9658(a)(1) (emphasis added). Section 309(b)(4)(A), in turn, defines the term "federally required commencement date" as follows:

> Except as provided in subparagraph (B) [regarding minor or incompetent plaintiffs], *the term "federally required commencement date," means the date the plaintiff knew* (or reasonably should have known) that the personal injury or property *damages* referred to in subsection (a)(1) of this section *were caused or contributed to by the hazardous substance or pollutant or contaminant concerned.*

42 U.S.C. § 9658(b)(4)(A) (emphasis added).

Although these provisions have been invoked only rarely, private plaintiffs may argue that, wherever a complaint contains a CERCLA claim as well as a state law claim (or even where a complaint contains only state law claims), CERCLA § 309 extends the state statutory limitations periods, so that the periods do not even begin to run until plaintiffs knew or reasonably should have known that the injury or damages suffered were caused or contributed to by the hazardous substance or pollutant or contaminant concerned. *See Tucker v. Southern Wood Piedmont Co.*, 28 F.3d 1089, 1091-92 (11th Cir.), *reh'g denied*, 38 F.3d 575 (11th Cir. 1994).

H. RCRA Actions Are Oftentimes Barred Where EPA or the State Is Proceeding With Respect to the Site at Issue; CERCLA and Common Law Claims Generally Are Not

A substantial limitation to RCRA claims brought under § 7002(a)(1)(B) is that they generally cannot be commenced with respect to sites where EPA:

- "has commenced and is diligently prosecuting" an action under § 7003 of RCRA or § 106 of CERCLA;[29]
- is actually engaging in a removal action under CERCLA § 104;
- has incurred costs to initiate a Remedial Investigation and Feasibility Study ("RI/FS") and is diligently proceeding with a remedial action; *or*
- has obtained a court order (including a consent decree) or issued an administrative order under CERCLA § 106 or RCRA § 7003 pursuant to which a responsible party is diligently conducting a CERCLA response action.

See RCRA § 7002(b)(2)(B). Similarly, such actions are generally prohibited where the state (as opposed to EPA) is diligently prosecuting an action under § 7002(a)(1)(B), is engaging in a removal action under CERCLA § 104, or has incurred costs to initiate an RI/FS and is diligently proceeding with a CERCLA remedial action. *See* RCRA § 7002(b)(2)(C).

Thus, prior to filing a RCRA contribution claim, private plaintiffs must ensure that none of the circumstances outlined in RCRA § 7002(b)(2)(B) or (C) regarding EPA or state action applies.

Although CERCLA contains a similar prohibition on citizens suits—where EPA is diligently prosecuting an action under CERCLA or RCRA to require compliance with regulations or other requirements, CERCLA § 310(d)(2)—there is no such prohibition with respect to contribution actions.

State common law contribution actions, too, are generally not barred by ongoing governmental enforcement efforts. Indeed, CERCLA provides expressly that:

> [*None of its provisions*] *shall affect* or modify in any way the obligations or *liabilities* of any person *under* other Federal or State law, including *common law*, with respect to releases of hazardous substances or other pollutants or contaminants.

CERCLA § 302(d), 42 U.S.C. § 9652(d) (emphasis added); *see United States v. Hooker Chem. & Plastics Corp.*, 739 F. Supp. 125, 129 (W.D.N.Y. 1990) (CERCLA does not prohibit contribution actions based on state law). On the other hand, *settlement* of a government claim under CERCLA may bar recovery by a private plaintiff under state law theories, at least with respect to "matters addressed in the settlement." *See United States v. Alexander*, 771 F. Supp. 830, 841 (S.D. Tex. 1991); 42 U.S.C. § 9613(f)(1), *vacated in part or other grounds*, 981 F.2d 250 (5th Cir. 1993).

I. EPA May Intervene in RCRA § 7002 Actions As a Matter of Right

Private plaintiffs must further consider that, even if EPA and the state are not involved with a site at the time that a lawsuit is commenced, EPA may intervene in the suit, "as a matter of right," at any time during the action. RCRA § 7002(d).[30]

Although CERCLA contains a nearly parallel provision, it applies only where the private action is brought under CERCLA's "citizen suit" provision, which is directed to enforcement of "any standard, regulation, condition, requirement, or order" that is effective under CERCLA. CERCLA § 310(g). This provision does not extend to CERCLA contribution actions. State common law claims typically would have no such requirements.

Depending upon whether participation by EPA will help (or hurt) them, private plaintiffs will want to consider RCRA's intervention provision in determining what type of contribution claim to bring.[31]

J. Private Plaintiffs Generally Must Give EPA, the State, and Violators/Contributors 60 to 90 Days Notice of a RCRA § 7002 Action

A significant, although procedural, difference that exists between a RCRA § 7002 claim and claims brought under CERCLA or state common law concerns notice.

Prior to filing a claim under RCRA § 7002, plaintiffs generally must give 60 or 90 days notice—depending on whether the action is brought under subsection 7002 (a)(1)(A) (requires

Suite 200, 1519 Connecticut Avenue, N.W., Washington, D.C. 20036 • 202-462-5755 • Fax 202-328-2430

60 days) or 7002 (a)(1)(B) (requires 90 days)—to EPA, the state, and any alleged violators or contributors to the endangerment.[32] This requirement is jurisdictional, requiring dismissal of an action in the event that a plaintiff fails to comply. *Hallstrom v. Tillamook County*, 844 F.2d 598, 599-601 (9th Cir. 1987) (surveying split of authority among the circuits on this issue with respect to notice requirements in other environmental statutes); *Agricultural Excess & Surplus Ins. Co. v. A.B.D. Tank & Pump Co.*, No. 94 C 2854, 1995 U.S. Dist. LEXIS 1871 (N.D. Ill. Feb. 14, 1995) (dismissing RCRA 7002 claim due to failure to give notice).

Thus, RCRA private plaintiffs generally must give 60, and possibly 90, days notice before commencing their lawsuit.

Although CERCLA contains a similar (60 day) notice requirement for CERCLA citizen suit actions (brought to enforce standards, regulations, and other requirements of CERCLA), 42 U.S.C. § 9659(d), there is no such requirement in the arena of CERCLA contribution actions. Similarly, there is generally no such requirement for state common law contribution actions.

K. Copies of Complaints Brought Under RCRA § 7002 or CERCLA § 107 Must Be Served on the Attorney General of the United States and the Administrator of EPA

Finally, copies of all complaints filed under RCRA § 7002 or CERCLA §s 107 or 113 must be served upon the Attorney General of the United States and the Administrator of EPA. RCRA § 7002(b)(2)(F); CERCLA § 113(l). There is no such requirement for state common law claims.

Conclusion

In sum, developments in case law and proposed legislation over the past year have limited or otherwise threatened private parties' ability to recover costs under CERCLA, but have expanded that ability (although with attendant risks) under RCRA.

Private parties should review these developments—as well as the still available (though rarely invoked) theories of state common law liability—as they consider pursuing, or defending against, contribution or other cost recovery claims related to contaminated sites.

Notes

* Mr. Hill is a partner with the law firm of Collier, Shannon, Rill & Scott, in Washington, D.C. He has represented private parties in Superfund, RCRA and other environmental proceedings for six years, and before that represented the Environmental Protection Agency as a Trial Attorney in the U.S. Department of Justice's Environmental Enforcement Section. Mr. Hill is a graduate of Williams College and Yale Law School.

1 *United States v. Colorado & Eastern R.R. Co.*, 50 F.3d 1530, 1534 (10th Cir. 1995); *United Technologies Corp. v. Browning-Ferris Indus., Inc.*, 33 F.3d 96, 99-103 (1st Cir. 1994), *cert. denied*,__U.S. __, 115 S. Ct. 1176 (1995); *Akzo Coatings, Inc. v. Aigner Corp.*, 30 F.3d 761, 764 (7th Cir. 1994).

2 *Key Tronic Corp. v. United States*,__U.S. __, 114 S. Ct. 1960 (1994).

3 *E.g. O'Neil v. Picillo*, 883 F.2d 176, 178 (1st Cir. 1989), *cert. denied sub nom. American Cyanamid Co. v. O'Neil*, 493 U.S. 1071, (1990); *United States v. Chem-Dyne Corp.*, 572 F. Supp. 802, 809-11 (S.D. Ohio 1983). *But cf. United States v. Alcan Aluminum Corp.*, 964 F.2d 252, 267-71 (3d Cir. 1992) (defendant can avoid CERCLA liability if it can prove that its waste, when mixed with other hazardous wastes, did not contribute to the release and the resultant response costs).

4 Although the term "contribution" typically applies only to claims between "two or more persons [who] are liable to the same plaintiff for

the same injury and one of the persons has paid more than his fair share of the liability," *Northwest Airlines, Inc. v. Transport Workers Union of America, AFL-CIO*, 451 U.S. 77, 87-88, 101 S. Ct. 1571, 1578-79 (1981), it shall be used herein to refer also to private cost recovery actions brought by parties who are "innocent" yet who have nevertheless incurred cleanup costs.

5 *E.g. Companies For Fair Allocation v. Axil Corp.*, 853 F. Supp. 575, 577-80 (D. Conn. 1994); *United States. v. SCA Services of Indiana, Inc.*, 849 F. Supp. 1264, 1273-81 (N.D. Ind. 1994); *Transportation Leasing Co. v. State of California*, 861 F. Supp. 931, 938 (C.D. Cal. 1993); *City of North Miami, Fla. v. Berger*, 828 F. Supp. 401, 407 (E.D. Va. 1993); *Chesapeake & Potomac Tel. Co. v. Peck Iron & Metal Co.*, 814 F. Supp. 1269, 1277-78 (E.D. Va. 1992); *United States v. Kramer*, 757 F. Supp. 397, 416 (D.N.J. 1991); *Kelley v. Thomas Solvent Co.*, 790 F. Supp. 710, 717 (W.D. Mich. 1990); *Burlington N. R.R. Co. v. Time Oil Co.*, 738 F. Supp. 1339, 1341-43 (W.D. Wash. 1990); *Allied Corp. v. Acme Solvents Reclaiming, Inc.*, 691 F. Supp. 1100, 1105, 1118 (N.D. Ill. 1988); *Chemical Waste Management, Inc. v. Armstrong World, Indus.*, 669 F. Supp. 1285, 1291 (E.D. Pa. 1987). *But see Transtech Indus. v. A & Z Septic Clean*, 798 F. Supp. 1079, 1085-87 (D.N.J. 1992), *appeal dismissed*, 5 F.3d 51 (3d Cir. 1993), *cert. denied sub nom. Mayco Oil & Chem v. Transtech Indus.*, __U.S.__, 114 S. Ct. 2692 (1994).

6 In *dictum*, the First Circuit indicated that "a PRP who spontaneously initiates a cleanup without government prodding might be able to pursue an implied right of action for contribution under [§ 107(a)]." 33 F.3d at 99 n.7.

7 *Quoting* H.R. Rep. No. 99-253 (III) 99th Cong. 1st Sess. 19 (1986), *reprinted in* 1986 U.S.C.C.A.N. 2835, 3038, 3042; and *citing United States v. R.W. Meyer, Inc.*, 889 F.2d 1497, 1507-08 (6th Cir. 1989) (a private plaintiff is entitled to relief against a defendant only to the extent that it can "demonstrate the divisibility of the harm and that it paid more than its fair share"), *cert. denied*, 494 U.S. 1057, 110 S. Ct. 1527 (1990).

8 *See also Kaufman & Broad-South Bay v. Unisys Corp.*, 868 F. Supp. 1212, 1215 & n.1 (N.D. Cal. 1994); *Chesapeake & Potomac Tel.*, 814 F. Supp. at 1278; *United States v. Kramer*, 757 F. Supp. at 416-17; *Versatile Metals, Inc. v. Union Corp.*, 693 F. Supp. 1563 (E.D. Pa. 1988).

9 The term "SARA" is an acronym for the 1986 amendments to CERCLA, contained in the Superfund Amendments and Reauthorization Act.

10 *E.g.* Statement of the Honorable Michael G. Oxley, Chairman, Subcomm. on Commerce, Trade, and Hazardous Materials, House Commerce Committee, at 3 (July 17, 1995) (proposes ending liability for pre-1987 activities); Superfund Reform Outline, by Senator R. Smith, Chairman, Subcommittee on Superfund, Waste Control and Risk Assessment, Senate Committee on Environment and Public Works, at 10-11 (June 28, 1995) (proposes ending liability for pre-1981 activities); S. 1994, 103d Cong., 2d Sess. § 102 (March 25, 1994) (proposed ending liability for pre-CERCLA activities); H.R. 4161, 103d Cong., 2d Sess. § 102 (March 24, 1994) (same).

11 As discussed in Section III(c), below, CERCLA § 101(14) (the term "hazardous substances" generally does not include "petroleum, including crude oil or any fraction thereof . . . .").

12 Owners or operators need not have control over waste disposal to be held liable under RCRA, but need only have authority to control the waste disposal that has led to the endangerment at issue. *See Acme Printing Ink Co. v. Menard, Inc.*, 812 F. Supp. 1498 (E.D. Wis. 1992). Transporters and generators face liability if they contributed in any way to the handling, storage, treatment, transportation, or disposal of the solid waste that is causing the endangerment issue. *See United States v. Aceto Agric. Chemicals Corp.*, 872 F.2d 1373, 1382-84 (8th Cir. 1989) (regarding liability under RCRA § 7003, which is worded virtually identically to § 7002). The Eighth Circuit has found the term "contributed to," as used in RCRA, to be arguably broader than the term "to arrange," as used in CERCLA. *Id.* at 1384.

Although not invoked in *KFC*, § 7002(a) also allows private party actions against any person

alleged to be in "violation of any permit, standard, regulation, condition, requirement, prohibition, or order" in effect under RCRA. § 7002(a)(1)(A).

13 *KFC*, 49 F.3d at 521, *quoting United States v. Aceto Agric. Chemicals Corp.*, 872 F.2d 1373, 1383 (8th Cir. 1989).

14 *Aceto Agric. Chemicals Corp.*, 872 F.2d at 1382-84.

15 Prior to *KFC*, but also in the past year, one district court had held that private parties have a right of contribution for cleanup costs under RCRA § 7003, 42 U.S.C. § 6973. *United States v. Valentine*, 856 F. Supp. 627 (D. Wyo. 1994). The *Valentine* decision was not relied upon by *KFC*, nor has it been followed by other courts. The pertinent language of § 7003 is virtually identical to § 7002, except that § 7003 expressly applies to the "[a]uthority of [EPA's] Administrator," whereas § 7002 applies to "citizens' suits." Despite this difference, the reasoning of the *Valentine* court is very similar to that of *KFC*, and it should be noted by parties considering or faced with actions brought under § 7002.

16 *E.g. Portsmouth Redev. & Hous. Auth. v. BMI Apartments Assocs.*, 847 F. Supp. 380, 385 (E.D. Va. 1994) ("the determination of liability for, and the allocation of the costs of, the cleanup of abandoned waste sites are not [within the reach of § 7002]."); *Kaufman & Broad-South Bay*, 822 F. Supp. at 1477 ("'While injunctive relief is available under § 6971(a)(1)(B), the statute does not provide a private action for damages.'") *quoting Commerce Holding Co. v. Buckstone*, 749 F. Supp. 441, 445 (E.D.N.Y. 1990), *and Environmental Defense Fund, Inc. v. Lamphier*, 714 F.2d 331, 337 (4th Cir. 1983).

17 *Cf. Olin Corp. v. Fisons PLC et al.*, C.A. No. 93-11166-MLW, 30 Chem. Waste Litig. Rptr. 379, slip op. at 22-23 (D. Mass. Apr. 24, 1995) (Magistrate's Report and Recommendation) (§ 7002(a)(1)(B) is available only to concerned citizens acting as private attorneys general to enforce environmental laws; it was "not intended to provide contribution to persons who have already accepted responsibility for and are conducting a cleanup in accordance with the provisions of some other law"), *citing BMI Apartments Assocs.*, 847 F. Supp. at 385, and *Lamphier*, 714 F.2d at 337.

18 RCRA § 7002(a)(1)(B). For helpful discussion of what constitutes an "imminent and substantial endangerment," see *Dague v. City of Burlington*, 935 F.2d 1343, 1355-56 (2d Cir. 1991), *rev'd in part on other grounds*, 505 U.S. 557, 112 S. Ct. 2638 (1992), and *B.F. Goodrich Co. v. Murtha*, 697 F. Supp. 89, 95-96 (D. Conn. 1988).

19 However, as discussed in Section III(E), below, CERCLA plaintiffs must show that the costs directed toward the release were necessary and consistent with the national contingency plan. *Id.*; *see* 40 C.F.R. pt. 300.

20 As discussed in note 12, above, in addition to § 7002(a)(1)(B), which was invoked in *KFC*, private plaintiffs may sue under RCRA § 7002(a)(1)(A), which applies to violations of RCRA permits or other RCRA standards. Section 7002(a)(1)(A) does not require a showing of "imminent and substantial endangerment," and thus also does not require a showing of cause. However, an action to recover costs under this subsection would, presumably, require proof that the plaintiff had incurred cleanup costs as a result of the defendant's violation, and that reimbursement of those costs constitutes "such other action as may be necessary" in order to fall within § 7002(a)'s remedy provisions.

21 *E.g. United States v. Wade*, 577 F. Supp. 1326, 1331-34 (E.D. Pa. 1983). *But cf. Alcan*, discussed *supra* at n.3.

22 A showing of cause is virtually always required under state common law theories. *See generally* 22 Am. Jur. 2d *Damages* § 2, at 15 (1965) ("To warrant the recovery of damages, there must be both a right of action for a wrong inflicted by the defendant and damage resulting therefrom to the plaintiff.").

23 Under RCRA, hazardous wastes are a subset of solid wastes. *See* RCRA § 1004(5), 42 U.S.C. § 6903(5) (definition of hazardous waste); 40 C.F.R. Part 261 (regarding identification and listing of hazardous wastes).

24 *Id.*; *see Craig Lyle Ltd. Partnership. v. Land O'Lakes, Inc.*, 877 F. Supp. 476, 481 (D. Minn. 1995), *citing Connecticut Coastal Fishermen's Ass'n v. Remington Arms Co.*, 989 F.2d 1305, 1315 (2d Cir. 1993); *Comite Pro Rescate de La Salud v. Puerto Rico Aqueduct & Sewer Authority*, 888 F.2d 180, 187 (1st Cir. 1989), *cert. denied*, 494 U.S. 1029, 110 S. Ct. 1476 (1990).

25 *Compare Alcan*, 755 F. Supp. at 542-43 (granting summary judgment for plaintiff United States as to costs where defendant did not demonstrate that the costs were inconsistent with the NCP), *with Control Data Corp. v. S.C.S.C. Corp.*, 53 F.3d 930, 934 (8th Cir. 1995) (private plaintiffs must show that they have incurred costs that are consistent with the NCP). Sites need not be on EPA's National Priorities List for private plaintiffs to recover their costs. *General Electric Co. v. Litton Business Systems, Inc.*, 715 F. Supp. 949, 962 (W.D. Mo. 1989), *aff'd*, 920 F.2d 1415 (8th Cir. 1990).

26 *Compare Weyerhaeuser Corp. v. Koppers Co.*, 771 F. Supp. 1406, 1413-14 (D. Md. 1991) (compliance with the NCP goes to the question of damages, not liability), *with Control Data Corp.*, 53 F.3d at 934 (proof that plaintiff has incurred recoverable costs is part of its *prima facie* case); *Lansford-Coaldale Joint Water Auth. v. Tonolli Corp.*, 4 F.3d 1209, 1219 (3d Cir. 1993) (same).

27 Consistency is determined in light of the NCP in effect at the time that the response costs at issue are incurred, not when the response actions are initiated or when the claims for cost recovery are evaluated. *Artesian Water Co. v. Gov't of New Castle County*, 659 F Supp. 1269, 1293-93 (D. Del. 1987), *aff'd*, 851 F.2d 643 (3d Cir. 1988). *But see Versatile Metals, Inc. v. Union Corp.*, 693 F. Supp. 1563, 1575 (E.D. Pa. 1988) (the "substantial compliance" standard applies even to costs that were incurred prior to the amendment).

28 Even in the First, Seventh and Tenth Circuits, "innocent" private parties remain free to sue under § 107. *See* cases cited *supra*, at n.1; *see also* note 5.

29 Claims brought under § 7002(a)(1)(A)—regarding violations of RCRA permits or other standards, *see* note 12, *supra*—are barred if EPA or the State has commenced and is diligently prosecuting a civil or criminal action to require compliance with the permit or other requirement at issue. § 7002(b)(1)(B).

30 RCRA § 7002(a)(2)(E) and CERCLA § 113(i) provide that, under some circumstances, other private parties may also intervene in RCRA and CERCLA actions, respectively. However, those provisions go no further, and in some respects are more limited than Fed. R. Civ. P. 24, which governs intervention in federal proceedings generally.

31 To the extent that defendants want EPA or the state to participate in the action (e.g. to avoid "multiple, or otherwise inconsistent obligations"), they may want to consider moving for joinder of these parties under Rule 19. Fed. R. Civ. P. 19(a). If joinder is not possible, defendants may want to move in the alternative for a dismissal. Fed. R. Civ. P. 19(b).

32 These waiting periods generally do not apply for violations of provisions contained in RCRA subchapter III (concerning hazardous wastes). *See* RCRA § 7002(b)(1)(A), (2)(A).

EXHIBIT J

Please print or type (Form designed for use on elite (12 pitch) typewriter.) Form Approved OMB No. 2050-0039 Expires [illegible]

UNIFORM HAZARDOUS WASTE MANIFEST
(Continuation Sheet)

21 Generator's US EPA ID No. | Manifest Document No.
22 Page
Information in the shaded areas is not required by Federal law
23 Generator's Name
L. State Manifest Document Number
M. State Generator's ID
24 Transporter ___ Company Name
25 US EPA ID Number
N. State Transporter's ID
O. Transporter's Phone
26 Transporter ___ Company Name
27 US EPA ID Number
P. State Transporter's ID
Q. Transporter's Phone

28 US DOT Description *(Including Proper Shipping Name, Hazard Class, and ID Number)*	29 Containers No.	Type	30 Total Quantity	31 Unit Wt./Vol.	R. Waste No.
a					
b					
c					
d					
e					
f					
g					
h					
i					

S. Additional Descriptions for Materials Listed Above
T. Handling Codes for Wastes Listed Above
32 Special Handling Instructions and Additional Information
33 Transporter ___ Acknowledgement of Receipt of Materials
Printed/Typed Name | Signature | Date Month Day Year
34 Transporter ___ Acknowledgement of Receipt of Materials
Printed/Typed Name | Signature | Date Month Day Year
35 Discrepancy Indication Space

GENERATOR · TRANSPORTER · FACILITY

EPA Form 8700-22A (Rev. 9-88) Previous edition is obsolete.

INSTRUCTIONS—CONTINUATION SHEET, U.S. EPA FORM 8700-22A

Read all instructions before completing this form.

This form has been designed for use on a 12-pitch (elite) typewriter; a firm point pen may also be used—press down hard.

This form must be used as a continuation sheet to U.S. EPA Form 8700-22 if:

- More than two transporters are to be used to transport the waste;
- More space is required for the U.S. DOT description and related information in Item 11 of U.S. EPA Form 8700-22.

Federal regulations require generators and transporters of hazardous waste and owners or operators of hazardous waste treatment, storage, or disposal facilities to use the uniform hazardous waste manifest (EPA Form 8700-22) and, if necessary, this continuation sheet (EPA Form 8700-22A) for both inter- and intrastate transportation.

GENERATORS

Item 21. Generator's U.S. EPA ID Number—Manifest Document Number

Enter the generator's U.S. EPA twelve digit identification number and the unique five digit number assigned to this Manifest (e.g., 00001) as it appears in item 1 on the first page of the Manifest.

Item 22. Page ——

Enter the page number of this Continuation Sheet.

Item 23. Generator's Name

Enter the generator's name as it appears in item 3 on the first page of the Manifest.

Item 24. Transporter —— *Company Name*

If additional transporters are used to transport the waste described on this Manifest, enter the company name of each additional transporter in the order in which they will transport the waste. Enter after the word "Transporter" the order of the transporter. For example, Transporter *3* Company Name. Each Continuation Sheet will record the names of two additional transporters.

Item 25. U.S. EPA ID Number

Enter the U.S. EPA twelve digit identification number of the transporter described in item 24.

Item 26. Transporter —— *Company Name*

If additional transporters are used to transport the waste described on this Manifest, enter the company name of each additional transporter in the order in which they will transport the waste. Enter after the word "Transporter" the order of the transporter. For example, Transporter *4* Company Name. Each Continuation Sheet will record the names of two additional transporters.

Item 27. U.S. EPA ID Number

Enter the U.S. EPA twelve digit identification number of the transporter described in item 26.

Item 28. U.S. DOT Description Including Proper Shipping Name, Hazardous Class, and ID Number (UN/NA)

Refer to item 11.

Item 29. Containers (No. and Type)

Refer to item 12.

Item 30. Total Quantity

Refer to item 13.

Item 31. Unit (Wt./Vol.)

Refer to item 14.

Item 32. Special Handling Instructions

Generators may use this space to indicate special transportation, treatment, storage, or disposal information or Bill of Lading information. States are *not* authorized to require additional, new, or different information in this space.

* * * * *

TRANSPORTERS

Item 33. Transporter —— *Acknowledgement of Receipt of Materials*

Enter the same number of the Transporter as identified in item 24. Enter also the name of the person accepting the waste on behalf of the Transporter (Company Name) identified in item 24. That person must acknowledge acceptance of the waste described on the Manifest by signing and entering the date of receipt.

Item 34. Transporter —— *Acknowledgement of Receipt of Materials*

Enter the same number as identified in item 26. Enter also the name of the person accepting the waste on behalf of the Transporter (Company Name) identified in item 26. That person must acknowledge acceptance of the waste described on the Manifest by signing and entering the date of receipt.

* * * * *

OWNERS AND OPERATORS OF TREATMENT, STORAGE, OR DISPOSAL FACILITIES

Item 35. Discrepancy Indication Space

Refer to item 19.

TABLE 117.3—REPORTABLE QUANTITIES OF HAZARDOUS SUBSTANCES DESIGNATED PURSUANT TO SECTION 311 OF THE CLEAN WATER ACT—Continued

Material	Category	RQ in pounds (kilograms)
Triethylamine	D	5,000 (2,270)
Trimethylamine	B	100 (45.4)
Uranyl acetate	B	100 (45.4)
Uranyl nitrate	B	100 (45.4)
Vanadium pentoxide	C	1,000 (454)
Vanadyl sulfate	C	1,000 (454)
Vinyl acetate	D	5,000 (2,270)
Vinylidene chloride	B	100 (45.4)
Xylene (*mixed*)	C	1,000 (454)
Xylenol	C	1,000 (454)
Zinc acetate	C	1,000 (454)
Zinc ammonium chloride	C	1,000 (454)
Zinc borate	C	1,000 (454)
Zinc bromide	C	1,000 (454)
Zinc carbonate	C	1,000 (454)
Zinc chloride	C	1,000 (454)
Zinc cyanide	A	10 (4.54)
Zinc fluoride	C	1,000 (454)
Zinc formate	C	1,000 (454)
Zinc hydrosulfite	C	1,000 (454)
Zinc nitrate	C	1,000 (454)
Zinc phenolsulfonate	D	5,000 (2,270)
Zinc phosphide	B	100 (45.4)
Zinc silicofluoride	D	5,000 (2,270)
Zinc sulfate	C	1,000 (454)
Zirconium nitrate	D	5,000 (2,270)
Zirconium potassium fluoride	C	1,000 (454)
Zirconium sulfate	D	5,000 (2,270)
Zirconium tetrachloride	D	5,000 (2,270)

[50 FR 13513, Apr. 4, 1985, as amended at 51 FR 34547, Sept. 29, 1986; 54 FR 33482, Aug. 14, 1989; 58 FR 35327, June 30, 1993]

EFFECTIVE DATE NOTE: At 58 FR 35327, June 30, 1993, §117.3 was amended by revising certain entries in the table, effective July 30, 1993. For the convenience of the user the superseded entries appears as follows:

§117.3 Determination of reportable quantities.

* * * * *

TABLE 117.3.—REPORTABLE QUANTITIES OF HAZARDOUS SUBSTANCES DESIGNATED PURSUANT TO SECTION 311 OF THE CLEAN WATER ACT

Material	Category	RQ in pounds (kilograms)
* * * * *		
Lead acetate	D	5,000 (2,270)
* * * * *		
Lead chloride	B	100 (45.4)
Lead fluchorate	B	100 (45.4)
Lead fluoride	B	100 (45.4)
Lead iodide	B	100 (45.4)
Lead nitrate	B	100 (45.4)
Lead stearate	D	5,000 (2,270)
Lead sulfate	B	100 (45.4)

TABLE 117.3.—REPORTABLE QUANTITIES OF HAZARDOUS SUBSTANCES DESIGNATED PURSUANT TO SECTION 311 OF THE CLEAN WATER ACT—Continued

Material	Category	RQ in pounds (kilograms)
Lead sulfide	D	5,000 (2,270)
Lead thiocyanate	B	100 (45.4)
* * * * *		

Subpart B—Applicability

§117.11 General applicability.

This regulation sets forth a determination of the reportable quantity for each substance designated as hazardous in 40 CFR part 116. The regulation applies to quantities of designated substances equal to or greater than the reportable quantities, when discharged into or upon the navigable waters of

the United States, adjoining shorelines, into or upon the contiguous zone, or beyond the contiguous zone as provided in section 311(b)(3) of the Act, except to the extent that the owner or operator can show such that discharges are made:

(a) In compliance with a permit issued under the Marine Protection, Research and Sanctuaries Act of 1972 (33 U.S.C. 1401 *et seq.*);

(b) In compliance with approved water treatment plant operations as specified by local or State regulations pertaining to safe drinking water;

(c) Pursuant to the label directions for application of a pesticide product registered under section 3 or section 24 of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), as amended (7 U.S.C. 136 *et seq.*), or pursuant to the terms and conditions of an experimental use permit issued under section 5 of FIFRA, or pursuant to an exemption granted under section 18 of FIFRA;

(d) In compliance with the regulations issued under section 3004 or with permit conditions issued pursuant to section 3005 of the Resource Conservation and Recovery Act (90 Stat. 2795; 42 U.S.C. 6901);

(e) In compliance with instructions of the On-Scene Coordinator pursuant to 40 CFR part 1510 (the National Oil and Hazardous Substances Pollution Plan) or 33 CFR 153.10(e) (Pollution by Oil and Hazardous Substances) or in accordance with applicable removal regulations as required by section 311(j)(1)(A);

(f) In compliance with a permit issued under §165.7 of Title 14 of the State of California Administrative Code;

(g) From a properly functioning inert gas system when used to provide inert gas to the cargo tanks of a vessel;

(h) From a permitted source and are excluded by §117.12 of this regulation;

(i) To a POTW and are specifically excluded or reserved in §117.13; or

(j) In compliance with a permit issued under section 404(a) of the Clean Water Act or when the discharges are exempt from such requirements by section 404(f) or 404(r) of the Act (33 U.S.C. 1344(a), (f), (r)).

§117.12 Applicability to discharges from facilities with NPDES permits.

(a) This regulation does not apply to:

(1) Discharges in compliance with a permit under section 402 of this Act;

(2) Discharges resulting from circumstances identified, reviewed and made a part of the public record with respect to a permit issued or modified under section 402 of this Act, and subject to a condition in such permit;

(3) Continuous or anticipated intermittent discharges from a point source, identified in a permit or permit application under section 402 of this Act, which are caused by events occurring within the scope of the relevant operating or treatment systems; or

(b) A discharge is "in compliance with a permit issued under section 402 of this Act" if the permit contains an effluent limitation specifically applicable to the substance discharged or an effluent limitation applicable to another waste parameter which has been specifically identified in the permit as intended to limit such substance, and the discharge is in compliance with the effluent limitation.

(c) A discharge results "from circumstances identified, reviewed and made a part of the public record with respect to a permit issued or modified under section 402 of the Act, and subject to a condition in such permit," whether or not the discharge is in compliance with the permit, where:

(1) The permit application, the permit, or another portion of the public record contains documents that specifically identify:

(i) The substance and the amount of the substance; and

(ii) The origin and source of the substance; and

(iii) The treatment which is to be provided for the discharge either by:

(A) An on-site treatment system separate from any treatment system treating the permittee's normal discharge; or

(B) A treatment system designed to treat the permittee's normal discharge and which is additionally capable of treating the identified amount of the identified substance; or

(C) Any combination of the above; and

TABLE 117.3—REPORTABLE QUANTITIES OF HAZARDOUS SUBSTANCES DESIGNATED PURSUANT TO SECTION 311 OF THE CLEAN WATER ACT—Continued

Material	Category	RQ in pounds (kilograms)
Dodecylbenzenesulfonic acid	C	1,000 (454)
Endosulfan	X	1 (0.454)
Endrin	X	1 (0.454)
Epichlorohydrin	B	100 (45.4)
Ethion	A	10 (4.54)
Ethylbenzene	C	1,000 (454)
Ethylenediamine	D	5,000 (2,270)
Ethylenediamine-tetraacetic acid (EDTA)	D	5,000 (2,270)
Ethylene dibromide	X	1 (0.454)
Ethylene dichloride	B	100 (45.4)
Ferric ammonium citrate	C	1,000 (454)
Ferric ammonium oxalate	C	1,000 (454)
Ferric chloride	C	1,000 (454)
Ferric fluoride	B	100 (45.4)
Ferric nitrate	C	1,000 (454)
Ferric sulfate	C	1,000 (454)
Ferrous ammonium sulfate	C	1,000 (454)
Ferrous chloride	B	100 (45.4)
Ferrous sulfate	C	1,000 (454)
Formaldehyde	B	100 (45.4)
Formic acid	D	5,000 (2,270)
Fumaric acid	D	5,000 (2,270)
Furfural	D	5,000 (2,270)
Guthion	X	1 (0.454)
Heptachlor	X	1 (0.454)
Hexachlorocyclopentadiene	A	10 (4.54)
Hydrochloric acid	D	5,000 (2,270)
Hydrofluoric acid	B	100 (45.4)
Hydrogen cyanide	A	10 (4.54)
Hydrogen sulfide	B	100 (45.4)
Isoprene	B	100 (45.4)
Isopropanolamine dodecylbenzenesulfonate	C	1,000 (454)
Kepone	X	1 (0.454)
Lead acetate	A	10 (4.54)
Lead arsenate	X	1 (0.454)
Lead chloride	A	10 (4.54)
Lead fluoborate	A	10 (4.54)
Lead fluoride	A	10 (4.54)
Lead iodide	A	10 (4.54)
Lead nitrate	A	10 (4.54)
Lead stearate	A	10 (4.54)
Lead sulfate	A	10 (4.54)
Lead sulfide	A	10 (4.54)
Lead thiocyanate	A	10 (4.54)
Lindane	X	1 (0.454)
Lithium chromate	A	10 (4.54)
Malathion	B	100 (45.4)
Maleic acid	D	5,000 (2,270)
Maleic anhydride	D	5,000 (2,270)
Mercaptodimethur	A	10 (4.54)
Mercuric cyanide	X	1 (0.454)
Mercuric nitrate	A	10 (4.54)
Mercuric sulfate	A	10 (4.54)
Mercuric thiocyanate	A	10 (4.54)
Mercurous nitrate	A	10 (4.54)
Methoxychlor	X	1 (0.454)
Methyl mercaptan	B	100 (45.4)
Methyl methacrylate	C	1,000 (454)
Methyl parathion	B	100 (45.4)
Mevinphos	A	10 (4.54)
Mexacarbate	C	1,000 (454)
Monoethylamine	B	100 (45.4)
Monomethylamine	B	100 (45.4)
Naled	A	10 (4.54)
Naphthalene	B	100 (45.4)
Naphthenic acid	B	100 (45.4)
Nickel ammonium sulfate	B	100 (45.4)
Nickel chloride	B	100 (45.4)
Nickel hydroxide	A	10 (4.54)
Nickel nitrate	B	100 (45.4)
Nickel sulfate	B	100 (45.4)

TABLE 117.3—REPORTABLE QUANTITIES OF HAZARDOUS SUBSTANCES DESIGNATED PURSUANT TO SECTION 311 OF THE CLEAN WATER ACT—Continued

Material	Category	RQ in pounds (kilograms)
Nitric acid	C	1,000 (454)
Nitrobenzene	C	1,000 (454)
Nitrogen dioxide	A	10 (4.54)
Nitrophenol (mixed)	B	100 (45.4)
Nitrotoluene	C	1,000 (454)
Paraformaldehyde	C	1,000 (454)
Parathion	A	10 (4.54)
Pentachlorophenol	A	10 (4.54)
Phenol	C	1,000 (454)
Phosgene	A	10 (4.54)
Phosphoric acid	D	5,000 (2,270)
Phosphorus	X	1 (0.454)
Phosphorus oxychloride	C	1,000 (454)
Phosphorus pentasulfide	B	100 (45.4)
Phosphorus trichloride	C	1,000 (454)
Polychlorinated biphenyls	X	1 (0.454)
Potassium arsenate	X	1 (0.454)
Potassium arsenite	X	1 (0.454)
Potassium bichromate	A	10 (4.54)
Potassium chromate	A	10 (4.54)
Potassium cyanide	A	10 (4.54)
Potassium hydroxide	C	1,000 (454)
Potassium permanganate	B	100 (45.4)
Propargite	A	10 (4.54)
Propionic acid	D	5,000 (2,270)
Propionic anhydride	D	5,000 (2,270)
Propylene oxide	B	100 (45.4)
Pyrethrins	X	1 (0.454)
Quinoline	D	5,000 (2,270)
Resorcinol	D	5,000 (2,270)
Selenium oxide	A	10 (4.54)
Silver nitrate	X	1 (0.454)
Sodium	A	10 (4.54)
Sodium arsenate	X	1 (0.454)
Sodium arsenite	X	1 (0.454)
Sodium bichromate	A	10 (4.54)
Sodium bifluoride	B	100 (45.4)
Sodium bisulfite	D	5,000 (2,270)
Sodium chromate	A	10 (4.54)
Sodium cyanide	A	10 (4.54)
Sodium dodecylbenzenesulfonate	C	1,000 (454)
Sodium fluoride	C	1,000 (454)
Sodium hydrosulfide	D	5,000 (2,270)
Sodium hydroxide	C	1,000 (454)
Sodium hypochlorite	B	100 (45.4)
Sodium methylate	C	1,000 (454)
Sodium nitrite	B	100 (45.4)
Sodium phosphate, dibasic	D	5,000 (2,270)
Sodium phosphate, tribasic	D	5,000 (2,270)
Sodium selenite	B	100 (45.4)
Strontium chromate	A	10 (4.54)
Strychnine	A	10 (4.54)
Styrene	C	1,000 (454)
Sulfuric acid	C	1,000 (454)
Sulfur monochloride	C	1,000 (454)
2,4,5-T acid	C	1,000 (454)
2,4,5-T amines	D	5,000 (2,270)
2,4,5-T esters	C	1,000 (454)
2,4,5-T salts	C	1,000 (454)
TDE	X	1 (0.454)
2,4,5-TP acid	B	100 (45.4)
2,4,5-TP acid esters	B	100 (45.4)
Tetraethyl lead	A	10 (4.54)
Tetraethyl pyrophosphate	A	10 (4.54)
Thallium sulfate	B	100 (45.4)
Toluene	C	1,000 (454)
Toxaphene	X	1 (0.454)
Trichlorfon	B	100 (45.4)
Trichloroethylene	B	100 (45.4)
Trichlorophenol	A	10 (4.54)
Triethanolamine dodecylbenzenesulfonate	C	1,000 (454)

NPDES equals National Pollutant Discharge Elimination System. RQ equals reportable quantity.

§ 117.3 Determination of reportable quantities.

Each substance in Table 117.3 that is listed in Table 302.4, 40 CFR part 302, is assigned the reportable quantity listed in Table 302.4 for that substance.

OF HAZARDOUS SUBSTANCES DESIGNATED PURSUANT TO SECTION 311 OF THE CLEAN WATER ACT

NOTE: The first number under the column headed "RQ" is the reportable quantity in pounds. The number in parentheses is the metric equivalent in kilograms. For convenience, the table contains a column headed "Category" which lists the code letters "X", "A", "B", "C", and "D" associated with reportable quantities of 1, 10, 100, 1000, and 5000 pounds, respectively.

TABLE 117.3—REPORTABLE QUANTITIES OF HAZARDOUS SUBSTANCES DESIGNATED PURSUANT TO SECTION 311 OF THE CLEAN WATER ACT

Material	Category	RQ in pounds (kilograms)
Acetaldehyde	C	1,000 (454)
Acetic acid	D	5,000 (2,270)
Acetic anhydride	D	5,000 (2,270)
Acetone cyanohydrin	A	10 (4.54)
Acetyl bromide	D	5,000 (2,270)
Acetyl chloride	D	5,000 (2,270)
Acrolein	X	1 (0.454)
Acrylonitrile	B	100 (45.4)
Adipic acid	D	5,000 (2,270)
Aldrin	X	1 (0.454)
Allyl alcohol	B	100 (45.4)
Allyl chloride	C	1,000 (454)
Aluminum sulfate	D	5,000 (2,270)
Ammonia	B	100 (45.4)
Ammonium acetate	D	5,000 (2,270)
Ammonium benzoate	D	5,000 (2,270)
Ammonium bicarbonate	D	5,000 (2,270)
Ammonium bichromate	A	10 (4.54)
Ammonium bifluoride	B	100 (45.4)
Ammonium bisulfite	D	5,000 (2,270)
Ammonium carbamate	D	5,000 (2,270)
Ammonium carbonate	D	5,000 (2,270)
Ammonium chloride	D	5,000 (2,270)
Ammonium chromate	A	10 (4.54)
Ammonium citrate dibasic	D	5,000 (2,270)
Ammonium fluoborate	D	5,000 (2,270)
Ammonium fluoride	B	100 (45.4)
Ammonium hydroxide	C	1,000 (454)
Ammonium oxalate	D	5,000 (2,270)
Ammonium silicofluoride	C	1,000 (454)
Ammonium sulfamate	D	5,000 (2,270)
Ammonium sulfide	B	100 (45.4)
Ammonium sulfite	D	5,000 (2,270)
Ammonium tartrate	D	5,000 (2,270)
Ammonium thiocyanate	D	5,000 (2,270)
Amyl acetate	D	5,000 (2,270)
Aniline	D	5,000 (2,270)
Antimony pentachloride	C	1,000 (454)
Antimony potassium tartrate	B	100 (45.4)
Antimony tribromide	C	1,000 (454)
Antimony trichloride	C	1,000 (454)
Antimony trifluoride	C	1,000 (454)
Antimony trioxide	C	1,000 (454)
Arsenic disulfide	X	1 (0.454)
Arsenic pentoxide	X	1 (0.454)
Arsenic trichloride	X	1 (0.454)
Arsenic trioxide	X	1 (0.454)
Arsenic trisulfide	X	1 (0.454)
Barium cyanide	A	10 (4.54)
Benzene	A	10 (4.54)
Benzoic acid	D	5,000 (2,270)
Benzonitrile	D	5,000 (2,270)
Benzoyl chloride	C	1,000 (454)
Benzyl chloride	B	100 (45.4)

SECTION 311 OF THE CLEAN WATER ACT—Continued

Material	Category	RQ in pounds (kilograms)
Beryllium chloride	X	1 (0.454)
Beryllium fluoride	X	1 (0.454)
Beryllium nitrate	X	1 (0.454)
Butyl acetate	D	5,000 (2,270)
Butylamine	C	1,000 (454)
n-Butyl phthalate	A	10 (4.54)
Butyric acid	D	5,000 (2,270)
Cadmium acetate	A	10 (4.54)
Cadmium bromide	A	10 (4.54)
Cadmium chloride	A	10 (4.54)
Calcium arsenate	X	1 (0.454)
Calcium arsenite	X	1 (0.454)
Calcium carbide	A	10 (4.54)
Calcium chromate	A	10 (4.54)
Calcium cyanide	A	10 (4.54)
Calcium dodecylbenzenesulfonate	C	1,000 (454)
Calcium hypochlorite	A	10 (4.54)
Captan	A	10 (4.54)
Carbaryl	B	100 (45.4)
Carbofuran	A	10 (4.54)
Carbon disulfide	B	100 (45.4)
Carbon tetrachloride	A	10 (4.54)
Chlordane	X	1 (0.454)
Chlorine	A	10 (4.54)
Chlorobenzene	B	100 (45.4)
Chloroform	A	10 (4.54)
Chlorosulfonic acid	C	1,000 (454)
Chlorpyrifos	X	1 (0.454)
Chromic acetate	C	1,000 (454)
Chromic acid	A	10 (4.54)
Chromic sulfate	C	1,000 (454)
Chromous chloride	C	1,000 (454)
Cobaltous bromide	C	1,000 (454)
Cobaltous formate	C	1,000 (454)
Cobaltous sulfamate	C	1,000 (454)
Coumaphos	A	10 (4.54)
Cresol	C	1,000 (454)
Crotonaldehyde	B	100 (45.4)
Cupric acetate	B	100 (45.4)
Cupric acetoarsenite	X	1 (0.454)
Cupric chloride	A	10 (4.54)
Cupric nitrate	B	100 (45.4)
Cupric oxalate	B	100 (45.4)
Cupric sulfate	A	10 (4.54)
Cupric sulfate, ammoniated	B	100 (45.4)
Cupric tartrate	B	100 (45.4)
Cyanogen chloride	A	10 (4.54)
Cyclohexane	C	1,000 (454)
2,4-D Acid	B	100 (45.4)
2,4-D Esters	B	100 (45.4)
DDT	X	1 (0.454)
Diazinon	X	1 (0.454)
Dicamba	C	1,000 (454)
Dichlobenil	B	100 (45.4)
Dichlone	X	1 (0.454)
Dichlorobenzene	B	100 (45.4)
Dichloropropane	C	1,000 (454)
Dichloropropene	B	100 (45.4)
Dichloropropene-Dichloropropane (mixture)	B	100 (45.4)
2,2-Dichloropropionic acid	D	5,000 (2,270)
Dichlorvos	A	10 (4.54)
Dicofol	A	10 (4.54)
Dieldrin	X	1 (0.454)
Diethylamine	B	100 (45.4)
Dimethylamine	C	1,000 (454)
Dinitrobenzene (mixed)	B	100 (45.4)
Dinitrophenol	A	10 (45.4)
Dinitrotoluene	A	10 (4.54)
Diquat	C	1,000 (454)
Disulfoton	X	1 (0 454)
Diuron	B	100 (45 4)

EXHIBIT K

Regulatory Guidance Letter (RGL 90-8)

RGL 90-8: Date: December 14, 1990.
Expires: December 31, 1993.
Subject: Applicability of section 404 to Pilings.

1. The purpose of this Regulatory Guidance Letter (RGL) is to provide additional guidance on the applicability of section 404 to certain categories of projects constructed with pilings in waters of the United States. This RGL represents a clarification and revision to RGL 88-14, which addresses this same subject. Therefore, effective on the date of this RGL, RGL 88-14 is rescinded.

2. For some years, the Army Corps of Engineers, as a matter of policy, has taken the position that pilings do not ordinarily constitute fill material and that the placement of pilings do not ordinarily constitute a discharge of fill material under the Clean Water Act (CWA; see RGL 88-14). Under RGL 88-14, however, the Corps recognized that "in the situation where piles are used in a manner essentially equivalent to file material in effect, purpose and function they should be treated as fill material under the section 404 program." Historically, pilings were generally used for traditional pile-supported structures such as docks and bridges where the effect, purpose and function of the pilings were not to replace an aquatic area with dry land or to change the bottom elevation of a waterbody. More recently, however, circumstances have changed, with pilings being used as a substitute for fill material. That is, there is increasing reliance on construction methods involving the use of pilings in place of fill, often at additional cost, in order to avoid regulation under the CWA section 404. The intent of this RGL is to clarify the application of requirements in the existing Corps regulations to these new circumstances involving the use of pilings in waters of the United States.

3. The Corps regulatory definitions of "fill material" and "discharge of fill material" (33 CFR 323.2 (e) and (f)) are clearly broad enough to capture the placement of pilings in waters of the United States as a discharge that could be regulated in certain specific circumstances. Projects involving

pilings meet the definition of "fill" when they have the physical effect or functional use and effect of fill; that is, pilings may be regulated when they constitute the equivalent "of replacing an aquatic area with dry land or changing the bottom elevation of a waterbody." As was explained in RGL 88-14, pilings may have this function or effect when they are placed so as to facilitate sedimentation, or are placed so densely that they in effect displace a substantial percentage of the water in the project area.

In addition, pilings have the physical effect or functional use of fill, and will be regulated as fill, in circumstances where a structure is placed on top of the pilings in such a manner as to constitute the functional equivalent of fill; or where pilings are placed for the same basic purpose as fill; or where pilings have essentially the same effects as fill (i.e., replaces an aquatic area with dry land or changes the bottom elevation of a waterbody). Similarly, the placement of pilings in waters of the United States may, in certain specific circumstances, be regulated as a "discharge of fill material" under the current regulations.

4. Therefore, based on current regulations, the placement of pilings in waters of the United States will require authorization under section 404 when such placement is used in a manner essentially equivalent to a discharge of fill material in physical effect or functional use and effect. Examples include, but are not limited to, the following activities in waters of the United States:

a. Physical Effect of Fill: Projects that in effect replace an aquatic area or change the bottom elevation of a waterbody as a result of the placement of pilings that are so closely spaced that sedimentation rates are increased, or the pilings themselves essentially replace the bottom, will be regulated under CWA Section 404. This circumstance would include pilings place in waters of the United States for dams, dikes, other structures utilizing densely spaced pilings or as a foundation for large structures.

b. Functional Use and Effect of Fill: Construction projects will be regulated under CWA Section 404 where pilings serve essentially the same functional use as a solid fill foundation, and where the project would result in essentially the same effects as fill (e.g., alter flow or circulation of the waters, bring the area into a new, non-aquatic use, or significantly alter or eliminate aquatic functions and values). Regulated activities include the placement of pilings to facilitate the construction of office and industrial developments, parking structures, restaurants, stores, hotels, multi-family housing projects and similar structures in waters of the United States.

5. Placement of pilings in waters of the United States will not, as in the past, be regulated under section 404 in circumstances involving linear projects such as bridges, elevated walkways, or powerline structures, since pile-supported structures have traditionally been used in these circumstances to cross waters of the United States, and have not substantially harmed or eliminated aquatic functions and values. Similarly, placement of pilings will not be regulated under section 404 in circumstances that involve structures that have traditionally been constructed on pilings; examples are piers, boathouses, wharves, marinas, lighthouses and individual houses built on stilts solely to reduce the potential of flooding (e.g., beach houses where road access is on uplands, but the house may be located in a low area necessitating construction on stilts).

6. We believe that it is appropriate to regulate projects placed on pilings, as provided for in paragraph 4. above, because of the effect the projects have on the aquatic environment and because they are essentially equivalent to solid-fill supported projects in purpose, effect and/or function. Moreover, we have noted an increasing incidence of cases where large-scale construction projects originally, and typically, designed to be built on fill material have been re-designed for pile supports solely for the purpose of evading section 404 regulation.

7. For any proposed pile-supported project where the proponent has relied on earlier Corps guidance to conclude reasonably that a project is not covered by section 404, and has committed substantial resources to the degree that it would be unreasonable and inequitable for the Corps to assert section 404 jurisdiction based on this RGL, the District should not assert section 404 jurisdiction. In cases where a project proponent has been provided a specific answer by the Corps, in writing, that a pile-supported structure will not require a section 404 permit, the District will not require a section 404 permit.

8. As with all determinations regarding whether a proposed activity requires a section 404 permit, the Corps is solely responsible for the decision.

9. This guidance expires 31 December 1993 unless sooner revised or rescinded.

For the Commander.

Stanley G. Genega,

Major General (P), USA, Director of Civil Works.

EXHIBIT L

APPENDIX A TO PART 330—NATIONWIDE PERMITS AND CONDITIONS

A. INDEX OF THE NATIONWIDE PERMITS AND CONDITIONS

Nationwide Permits

1. Aids to Navigation
2. Structures in Artificial Canals
3. Maintenance
4. Fish and Wildlife Harvesting, Enhancement, and Attraction Devices and Activities
5. Scientific Measurement Devices
6. Survey Activities
7. Outfall Structures
8. Oil and Gas Structures
9. Structures in Fleeting and Anchorage Areas
10. Mooring Buoys
11. Temporary Recreational Structures
12. Utility Line Backfill and Bedding
13. Bank Stabilization
14. Road Crossing
15. U.S. Coast Guard Approved Bridges
16. Return Water From Upland Contained Disposal Areas
17. Hydropower Projects
18. Minor Discharges
19. 25 Cubic Yard Dredging
20. Oil Spill Cleanup
21. Surface Mining Activities
22. Removal of Vessels
23. Approved Categorical Exclusions
24. State Administered Section 404 Programs
25. Structural Discharge
26. Headwaters and Isolated Waters Discharges
27. Wetland Restoration Activities
28. Modifications of Existing Marinas
29. Reserved
30. Reserved
31. Reserved
32. Completed Enforcement Actions
33. Temporary Construction and Access
34. Cranberry Production Activities
35. Maintenance Dredging of Existing Basins
36. Boat Ramps
37. Emergency Watershed Protection
38. Cleanup of Hazardous and Toxic Waste
39. Reserved
40. Farm Buildings

Nationwide Permit Conditions

General Conditions

1. Navigation
2. Proper Maintenance
3. Erosion and Siltation Controls
4. Aquatic Life Movements
5. Equipment
6. Regional and Case-By-Case Conditions
7. Wild and Scenic Rivers
8. Tribal Rights
9. Water Quality Certification
10. Coastal Zone Management
11. Endangered Species
12. Historic Properties
13. Notification

Section 404 Only Conditions

1. Water Supply Intakes
2. Shellfish Production
3. Suitable Material
4. Mitigation
5. Spawning Areas
6. Obstruction of High Flows

7. Adverse Impacts From Impoundments
8. Waterfowl Breeding Areas
9. Removal of Temporary Fills

B. NATIONWIDE PERMITS

1. *Aids to Navigation*. The placement of aids to navigation and regulatory markers which are approved by and installed in accordance with the requirements of the U.S. Coast Guard. (See 33 CFR part 66, chapter I, subchapter C). (section 10)

2. *Structures in Artificial Canals*. Structures constructed in artificial canals within principally residential developments where the connection of the canal to a navigable water of the United States has been previously authorized (see 33 CFR 322.5(g)). (section 10)

3. *Maintenance*. The repair, rehabilitation, or replacement of any previously authorized, currently serviceable, structure or fill, or of any currently serviceable structure or fill authorized by 33 CFR 330.3, provided that the structure or fill is not to be put to uses differing from those uses specified or contemplated for it in the original permit or the most recently authorized modification. Minor deviations in the structure's configuration or filled area including those due to changes in materials, construction techniques, or current construction codes or safety standards which are necessary to make repair, rehabilitation, or replacement are permitted, provided the environmental impacts resulting from such repair, rehabilitation, or replacement are minimal. Currently serviceable means useable as is or with some maintenance, but not so degraded as to essentially require reconstruction. This nationwide permit authorizes the repair, rehabilitation, or replacement of those structures destroyed by storms, floods, fire or other discrete events, provided the repair, rehabilitation, or replacement is commenced or under contract to commence within two years of the date of their destruction or damage. In cases of catastrophic events, such as hurricanes or tornadoes, this two-year limit may be waived by the District Engineer, provided the permittee can demonstrate funding, contract, or other similar delays. Maintenance dredging and beach restoration are not authorized by this nationwide permit. (sections 10 and 404)

4. *Fish and Wildlife Harvesting, Enhancement, and Attraction Devices and Activities*. Fish and wildlife harvesting devices and activities such as pound nets, crab traps, crab dredging, eel pots, lobster traps, duck blinds, clam and oyster digging; and small fish attraction devices such as open water fish concentrators (sea kites, etc). This nationwide permit authorizes shellfish seeding provided this activity does not occur in wetlands or vegetated shallows. This nationwide permit does not authorize artificial reefs or impoundments and semi-impoundments of waters of the United States for the culture or holding of motile species such as lobster. (sections 10 and 404)

5. *Scientific Measurement Devices*. Staff gages, tide gages, water recording devices, water quality testing and improvement devices and similar structures. Small weirs and flumes constructed primarily to record water quantity and velocity are also authorized provided the discharge is limited to 25 cubic yards and further for discharges of 10 to 25 cubic yards provided the permittee notifies the district engineer in accordance with "Notification" general condition. (sections 10 and 404)

6. *Survey Activities*. Survey activities including core sampling, seismic exploratory operations, and plugging of seismic shot holes and other exploratory-type bore holes. Drilling and the discharge of excavated material from test wells for oil and gas exploration is not authorized by this nationwide permit; the plugging of such wells is authorized. Fill placed for roads, pads and other similar activities is not authorized by this nationwide permit. The discharge of drilling muds and cuttings may require a permit under section 402 of the Clean Water Act. (sections 10 and 404)

7. *Outfall Structures*. Activities related to construction of outfall structures and associated intake structures where the effluent from the outfall is authorized, conditionally authorized, or specifically exempted, or are otherwise in compliance with regulations issued under the National Pollutant Discharge Elimination System program (section 402 of the Clean Water Act),

provided that the nationwide permittee notifies the district engineer in accordance with the "Notification" general condition. (Also see 33 CFR 330.1(e)). Intake structures per se are not included—only those directly associated with an outfall structure. (sections 10 and 404)

8. *Oil and Gas Structures*. Structures for the exploration, production, and transportation of oil, gas, and minerals on the outer continental shelf within areas leased for such purposes by the Department of the Interior, Minerals Management Service. Such structures shall not be placed within the limits of any designated shipping safety fairway or traffic separation scheme, except temporary anchors that comply with the fairway regulations in 33 CFR 322.5(l). (Where such limits have not been designated, or where changes are anticipated, district engineers will consider asserting discretionary authority in accordance with 33 CFR 330.4(e) and will also review such proposals to ensure they comply with the provisions of the fairway regulations in 33 CFR 322.5(l)). Such structures will not be placed in established danger zones or restricted areas as designated in 33 CFR part 334: nor will such structures be permitted in EPA or Corps designated dredged material disposal areas. (section 10)

9. *Structures in Fleeting and Anchorage Areas*. Structures, buoys, floats, and other devices placed within anchorage or fleeting areas to facilitate moorage of vessels where such areas have been established for that purpose by the U.S. Coast Guard. (section 10)

10. *Mooring Buoys*. Non-commercial, single-boat, mooring buoys. (section 10)

11. *Temporary Recreational Structures*. Temporary buoys, markers, small floating docks, and similar structures placed for recreational use during specific events such as water skiing competitions and boat races or seasonal use provided that such structures are removed within 30 days after use has been discontinued. At Corps of Engineers reservoirs, the reservoir manager must approve each buoy or marker individually. (section 10)

12. *Utility Line Backfill and Bedding*. Discharges of material for backfill or bedding for utility lines, including outfall and intake structures, provided there is no change in preconstruction contours. A "utility line" is defined as any pipe or pipeline for the transportation of any gaseous, liquid, liquefiable, or slurry substance, for any purpose, and any cable, line, or wire for the transmission for any purpose of electrical energy, telephone and telegraph messages, and radio and television communication. The term "utility line" does not include activities which drain a water of the United States, such as drainage tile, however, it does apply to pipes conveying drainage from another area. Material resulting from trench excavation may be temporarily sidecast (up to three months) into waters of the United States provided that the material is not placed in such a manner that it is dispersed by currents or other forces. The DE may extend the period of temporary side-casting up to 180 days, where appropriate. The area of waters of the United States that is disturbed must be limited to the minimum necessary to construct the utility line. In wetlands, the top 6" to 12" of the trench should generally be backfilled with topsoil from the trench. Excess material must be removed to upland areas immediately upon completion of construction. Any exposed slopes and streambanks must be stabilized immediately upon completion of the utility line. The utility line itself will require a Section 10 permit if in navigable waters of the United States. (See 33 CFR part 322). (section 404)

13. *Bank Stabilization*. Bank stabilization activities necessary for erosion prevention provided:

a. No material is placed in excess of the minimum needed for erosion protection;

b. The bank stabilization activity is less than 500 feet in length;

c. The activity will not exceed an average of one cubic yard per running foot placed along the bank below the plane of the ordinary high water mark or the high tide line;

d. No material is placed in any special aquatic site, including wetlands;

e. No material is of the type or is placed in any location or in any manner so as to impair surface water flow into or out of any wetland area;

f. No material is placed in a manner that will be eroded by normal or expected high flows (properly anchored trees and treetops may be used in low energy areas); and,

g. The activity is part of a single and complete project.

Bank stabilization activities in excess of 500 feet in length or greater than an average of one cubic yard per running foot may be authorized if the permittee notifies the district engineer in accordance with the "Notification" general condition and the district engineer determines the activity complies with the other terms and conditions of the nationwide permit and the adverse environmental impacts are minimal both individually and cumulatively. (sections 10 and 404)

14. *Road Crossing.* Fills for roads crossing waters of the United States (including wetlands and other special aquatic sites) provided:

a. The width of the fill is limited to the minimum necessary for the actual crossing;

b. The fill placed in waters of the United States is limited to a filled area of no more than ⅓ acre. Furthermore, no more than a total of 200 linear feet of the fill for the roadway can occur in special aquatic sites, including wetlands;

c. The crossing is culverted, bridged or otherwise designed to prevent the restriction of, and to withstand, expected high flows and tidal flows, and to prevent the restriction of low flows and the movement of aquatic organisms;

d. The crossing, including all attendant features, both temporary and permanent, is part of a single and complete project for crossing of a water of the United States; and,

e. For fills in special aquatic sites, including wetlands, the permittee notifies the district engineer in accordance with the "Notification" general condition. The notification must also include a delineation of affected special aquatic sites, including wetlands.

Some road fills may be eligible for an exemption from the need for a Section 404 permit altogether (see 33 CFR 323.4). Also, where local circumstances indicate the need, district engineers will define the term "expected high flows" for the purpose of establishing applicability of this nationwide permit. (sections 10 and 404)

15. *U.S. Coast Guard Approved Bridges.* Discharges of dredged or fill material incidental to the construction of bridges across navigable waters of the United States, including cofferdams, abutments, foundation seals, piers, and temporary construction and access fills provided such discharges have been authorized by the U.S. Coast Guard as part of the bridge permit. Causeways and approach fills are not included in this nationwide permit and will require an individual or regional section 404 permit. (section 404)

16. *Return Water From Upland Contained Disposal Areas.* Return water from an upland, contained dredged material disposal area. The dredging itself requires a section 10 permit if located in navigable waters of the United States. The return water from a contained disposal area is administratively defined as a discharge of dredged material by 33 CFR 323.2(d) even though the disposal itself occurs on the upland and thus does not require a section 404 permit. This nationwide permit satisfies the technical requirement for a section 404 permit for the return water where the quality of the return water is controlled by the state through the section 401 certification procedures. (section 404)

17. *Hydropower Projects.* Discharges of dredged or fill material associated with (a) small hydropower projects at existing reservoirs where the project, which includes the fill, is licensed by the Federal Energy Regulatory Commission (FERC) under the Federal Power Act of 1920, as amended; and has a total generating capacity of not more than 5000 KW; and the permittee notifies the district engineer in accordance with the "Notification" general condition; or (b) hydropower projects for which the FERC has granted an exemption from licensing pursuant to section 408 of the Energy Security Act of 1980 (16 U.S.C. 2705 and 2708) and section 30 of the Federal Power Act, as amended; provided the permittee notifies the district engineer in accordance with the "Notification" general condition. (section 404)

18. *Minor Discharges.* Minor discharges of dredged or fill material into all waters of the United States provided:

a. The discharge does not exceed 25 cubic yards;

b. The discharge will not cause the loss of more than 1/10 acre of a special aquatic site, including wetlands. For the purposes of this nationwide permit, the acreage limitation includes the filled area plus special aquatic sites that are adversely affected by flooding and special aquatic sites that are drained so that they would no longer be a water of the United States as a result of the project;

c. If the discharge exceeds 10 cubic yards or the discharge is in a special aquatic site, including wetlands, the permittee notifies the district engineer in accordance with the "Notification" general condition. For discharges in special aquatic sites, including wetlands, the notification must also include a delineation of affected special aquatic sites, including wetlands. (Also see 33 CFR 330.1(e)); and

d. The discharge, including all attendant features, both temporary and permanent, is part of a single and complete project and is not placed for the purpose of stream diversion. (sections 10 and 404)

19. *Minor Dredging.* Dredging of no more than 25 cubic yards below the plane of the ordinary high water mark or the mean high water mark from navigable waters of the United States as part of a single and complete project. This nationwide permit does not authorize the dredging or degradation through siltation of coral reefs, submerged aquatic vegetation, anadromous fish spawning areas, or wetlands or, the connection of canals or other artificial waterways to navigable waters of the United States (see 33 CFR 322.5(g)). (section 10)

20. *Oil Spill Cleanup.* Activities required for the containment and cleanup of oil and hazardous substances which are subject to the National Oil and Hazardous Substances Pollution Contingency Plan, (40 CFR part 300), provided that the work is done in accordance with the Spill Control and Countermeasure Plan required by 40 CFR 112.3 and any existing State contingency plan and provided that the Regional Response Team (if one exists in the area) concurs with the proposed containment and cleanup action. (sections 10 and 404)

21. *Surface Coal Mining Activities.* Activities associated with surface coal mining activities provided they are authorized by the Department of the Interior, Office of Surface Mining, or by states with approved programs under Title V of the Surface Mining Control and Reclamation Act of 1977 and provided the permittee notifies the district engineer in accordance with the "Notification" general condition. For discharges in special aquatic sites, including wetlands, the notification must also include a delineation of affected special aquatic sites, including wetlands. (Also see 33 CFR 330.1(e)). (sections 10 and 404)

22. *Removal of Vessels.* Temporary structures or minor discharges of dredged or fill material required for the removal of wrecked, abandoned, or disabled vessels, or the removal of man-made obstructions to navigation. This nationwide permit does not authorize the removal of vessels listed or determined eligible for listing on the National Register of Historic Places unless the district engineer is notified and indicates that there is compliance with the "Historic Properties" general condition. This nationwide permit does not authorize maintenance dredging, shoal removal, or river bank snagging. Vessel disposal in waters of the United States may need a permit from EPA (see 40 CFR 229.3). (sections 10 and 404)

23. *Approved Categorical Exclusions.* Activities undertaken, assisted, authorized, regulated, funded, or financed, in whole or in part, by another Federal agency or department where that agency or department has determined, pursuant to the Council on Environmental Quality Regulation for Implementing the Procedural Provisions of the National Environmental Policy Act (40 CFR part 1500 et seq.), that the activity, work, or discharge is categorically excluded from environmental documentation because it is included within a category of actions which neither individually nor cumulatively have a significant effect on the human environment, and the Office of the Chief of Engineers (ATTN: CECW-OR) has been furnished notice of the

The permittee must notify the district engineer in accordance with the "Notification" general condition. The notification must also include a restoration plan of reasonable measures to avoid and minimize impacts to aquatic resources. The district engineer will add special conditions, where necessary, to ensure that adverse environmental impacts are minimal. Such conditions may include: limiting the temporary work to the minimum necessary; requiring seasonal restrictions; modifying the restoration plan; and requiring alternative construction methods (e.g. construction mats in wetlands where practicable). This nationwide permit does not authorize temporary structures or fill associated with mining activities or the construction of marina basins which have not been authorized by the Corps. (sections 10 and 404)

34. *Cranberry Production Activities:* Discharges of dredged or fill material for dikes, berms, pumps, water control structures or leveling of cranberry beds associated with expansion, enhancement, or modification activities at existing cranberry production operations provided:

a. The cumulative total acreage of disturbance per cranberry production operation, including but not limited to, filling, flooding, ditching, or clearing, does not exceed 10 acres of waters of the United States, including wetlands;

b. The permittee notifies the District Engineer in accordance with the notification procedures; and

c. The activity does not result in a net loss of wetland acreage.

This nationwide permit does not authorize any discharge of dredged or fill material related to other cranberry production activities such as warehouses, processing facilities, or parking areas. For the purposes of this nationwide permit, the cumulative total of 10 acres will be measured over the period that this nationwide permit is valid. (section 404)

35. *Maintenance Dredging of Existing Basins.* Excavation and removal of accumulated sediment for maintenance of existing marina basins, canals, and boat slips to previously authorized depths or controlling depths for ingress/egress whichever is less provided the dredged material is disposed of at an upland site and proper siltation controls are used. (section 10)

36. *Boat Ramps.* Activities required for the construction of boat ramps provided:

a. The discharge into waters of the United States does not exceed 50 cubic yards of concrete, rock, crushed stone or gravel into forms, or placement of pre-cast concrete planks or slabs. (Unsuitable material that causes unacceptable chemical pollution or is structurally unstable is not authorized);

b. The boat ramp does not exceed 20 feet in width;

c. The base material is crushed stone, gravel or other suitable material;

d. The excavation is limited to the area necessary for site preparation and all excavated material is removed to the upland; and

e. No material is placed in special aquatic sites, including wetlands.

Dredging to provide access to the boat ramp may be authorized by another NWP, regional general permit, or individual permit pursuant to section 10 if located in navigable waters of the United States. (sections 10 and 404)

37. *Emergency Watershed Protection and Rehabilitation.* Work done by or funded by the Soil Conservation Service qualifying as an "exigency" situation (requiring immediate action) under its Emergency Watershed Protection Program (7 CFR part 624) and work done or funded by the Forest Service under its Burned-Area Emergency Rehabilitation Handbook (FSH 509.13) provided the district engineer is notified in accordance with the notification general condition. (Also see 33 CFR 330.1(e)). (sections 10 and 404)

38. *Cleanup of Hazardous and Toxic Waste.* Specific activities required to effect the containment, stabilization or removal of hazardous or toxic waste materials that are performed, ordered, or sponsored by a government agency with established legal or regulatory authority provided the permittee notifies the district engineer in accordance with the "Notification" general condition. For discharges in special aquatic sites, including wetlands, the notification must also include a delineation of affected special aquatic sites, including wetlands. Court ordered remedial action plans or related settlements are also authorized by this nationwide permit. This nationwide permit does not authorize the establishment of new disposal sites or the expansion of existing sites used for the disposal of hazardous or toxic waste. (sections 10 and 404)

39. Reserved

40. *Farm Buildings.* Discharges of dredged or fill material into jurisdictional wetlands (but not including prairie potholes, playa lakes, or vernal pools) that were in agricultural crop production prior to December 23, 1985 (i.e., farmed wetlands) for foundations and building pads for buildings or agricultural related structures necessary for farming activities. The discharge will be limited to the minimum necessary but will in no case exceed 1 acre (see the "Minimization" section 404 only condition). (section 404)

C. Nationwide Permit Conditions

General Conditions: The following general conditions must be followed in order for any authorization by a nationwide permit to be valid:

1. *Navigation.* No activity may cause more than a minimal adverse effect on navigation.

2. *Proper maintenance.* Any structure or fill authorized shall be properly maintained, including maintenance to ensure public safety.

3. *Erosion and siltation controls.* Appropriate erosion and siltation controls must be used and maintained in effective operating condition during construction, and all exposed soil and other fills must be permanently stabilized at the earliest practicable date.

4. *Aquatic life movements.* No activity may substantially disrupt the movement of those species of aquatic life indigenous to the waterbody, including those species which normally migrate through the area, unless the activity's primary purpose is to impound water.

5. *Equipment.* Heavy equipment working in wetlands must be placed on mats or other measures must be taken to minimize soil disturbance.

6. *Regional and case-by-case conditions.* The activity must comply with any regional conditions which may have been added by the division engineer (see 33 CFR 330.4(e)) and any case specific conditions added by the Corps.

7. *Wild and Scenic Rivers.* No activity may occur in a component of the National Wild and Scenic River System; or in a river officially designated by Congress as a "study river" for possible inclusion in the system, while the river is in an official study status. Information on Wild and Scenic Rivers may be obtained from the National Park Service and the U.S. Forest Service.

8. *Tribal rights.* No activity or its operation may impair reserved tribal rights, including, but not limited to, reserved water rights and treaty fishing and hunting rights.

9. *Water quality certification.* In certain states, an individual state water quality certification must be obtained or waived (see 33 CFR 330.4(c)).

10. *Coastal zone management.* In certain states, an individual state coastal zone management consistency concurrence must be obtained or waived. (see 33 CFR 330.4(d)).

11. *Endangered Species.* No activity is authorized under any NWP which is likely to jeopardize the continued existence of a threatened or endangered species or a species proposed for such designation, as identified under the Federal Endangered Species Act, or which is likely to destroy or adversely modify the critical habitat of such species. Non-federal permittees shall notify the district engineer if any listed species or critical habitat might be affected or is in the vicinity of the project and shall not begin work on the activity until notified by the district engineer that the requirements of the Endangered Species Act have been satisfied and that the activity is authorized. Information on the location of threatened and endangered species and their critical habitat can be obtained from the U.S. Fish and Wildlife Service and National Marine Fisheries Service. (see 33 CFR 330.4(f))

12. *Historic properties.* No activity which may affect Historic properties listed, or eligible for listing, in the National Register of Historic Places is authorized, until the DE has complied with the provisions of 33 CFR 325, appendix C. The prospective permittee must notify the district engineer if the authorized activity may affect any historic properties listed, determined to be eligible, or which the prospective

permittee has reason to believe may be eligible for listing on the National Register of Historic Places, and shall not begin the activity until notified by the District Engineer that the requirements of the National Historic Preservation Act have been satisfied and that the activity is authorized. Information on the location and existence of historic resources can be obtained from the State Historic Preservation Office and the National Register of Historic Places (see 33 CFR 330.4(g)).

13. *Notification.* (a) Where required by the terms of the NWP, the prospective permittee must notify the District Engineer as early as possible and shall not begin the activity:

(1) Until notified by the District Engineer that the activity may proceed under the NWP with any special conditions imposed by the district or division engineer; or

(2) If notified by the District or Division engineer that an individual permit is required; or

(3) Unless 30 days have passed from the District Engineer's receipt of the notification and the prospective permittee has not received notice from the District or Division Engineer. Subsequently, the permittee's right to proceed under the NWP may be modified, suspended, or revoked only in accordance with the procedure set forth in 33 CFR 330.5(d)(2).

(b) The notification must be in writing and include the following information and any required fees:

(1) Name, address and telephone number of the prospective permittee;

(2) Location of the proposed project;

(3) Brief description of the proposed project; the project's purpose; direct and indirect adverse environmental effects the project would cause; any other NWP(s), regional general permit(s) or individual permit(s) used or intended to be used to authorize any part of the proposed project or any related activity;

(4) Where required by the terms of the NWP, a delineation of affected special aquatic sites, including wetlands; and

(5) A statement that the prospective permittee has contacted:

(i) The USFWS/NMFS regarding the presence of any Federally listed (or proposed for listing) endangered or threatened species or critical habitat in the permit area that may be affected by the proposed project; and any available information provided by those agencies. (The prospective permittee may contact Corps District Offices for USFWS/NMFS agency contacts and lists of critical habitat.)

(ii) The SHPO regarding the presence of any historic properties in the permit area that may be affected by the proposed project; and the available information, if any, provided by that agency.

(c) The standard individual permit application form (Form ENG 4345) may be used as the notification but must clearly indicate that it is a PDN and must include all of the information required in (b) (1)-(5) of General Condition 13.

(d) In reviewing an activity under the notification procedure, the District Engineer will first determine whether the activity will result in more than minimal individual or cumulative adverse environmental effects or will be contrary to the public interest. The prospective permittee may, at his option, submit a proposed mitigation plan with the predischarge notification to expedite the process and the District Engineer will consider any optional mitigation the applicant has included in the proposal in determining whether the net adverse environmental effects of the proposed work are minimal. The District Engineer will consider any comments from Federal and State agencies concerning the proposed activity's compliance with the terms and conditions of the nationwide permits and the need for mitigation to reduce the project's adverse environmental effects to a minimal level. The district engineer will upon receipt of a notification provide immediately (e.g. facsimile transmission, overnight mail or other expeditious manner) a copy to the appropriate offices of the Fish and Wildlife Service, State natural resource or water quality agency, EPA, and, if appropriate, the National Marine Fisheries Service. With the exception of NWP 37, these agencies will then have 5 calendar days from the date the material is transmitted to telephone the District Engineer if they

intend to provide substantive, site-specific comments. If so contacted by an agency, the District Engineer will wait an additional 10 calendar days before making a decision on the notification. The District Engineer will fully consider agency comments received within the specified time frame, but will provide no response to the resource agency. The District Engineer will indicate in the administrative record associated with each notification that the resource agencies' concerns were considered. Applicants are encouraged to provide the Corps multiple copies of notifications to expedite agency notification. If the District Engineer determines that the activity complies with the terms and conditions of the NWP and that the adverse effects are minimal, he will notify the permittee and include any conditions he deems necessary. If the District Engineer determines that the adverse effects of the proposed work are more than minimal, then he will notify the applicant either: (1) That the project does not qualify for authorization under the NWP and instruct the applicant on the procedures to seek authorization under an individual permit; or (2) that the project is authorized under the nationwide permit subject to the applicant's submitting a mitigation proposal that would reduce the adverse effects to the minimal level. This mitigation proposal must be approved by the District Engineer prior to commencing work. If the prospective permittee elects to submit a mitigation plan, the DE will expeditiously review the proposed mitigation plan, but will not commence a second 30-day notification procedure. If the net adverse effects of the project (with the mitigation proposal) are determined by the District Engineer to be minimal, the District Engineer will provide a timely written response to the applicant informing him that the project can proceed under the terms and conditions of the nationwide permit.

(e) *Wetlands Delineations:* Wetland delineations must be prepared in accordance with the current method required by the Corps. The permittee may ask the Corps to delineate the special aquatic site. There may be some delay if the Corps does the delineation. Furthermore, the 30-day period will not start until the wetland delineation has been completed.

(f) *Mitigation:* Factors that the District Engineer will consider when determining the acceptability of appropriate and practicable mitigation include, but are not limited to:

(1) To be practicable the mitigation must be available and capable of being done considering costs, existing technology, and logistics in light of overall project purposes;

(2) To the extent appropriate, permittees should consider mitigation banking and other forms of mitigation including contributions to wetland trust funds, which contribute to the restoration, creation, replacement, enhancement, or preservation of wetlands.

Furthermore, examples of mitigation that may be appropriate and practicable include but are not limited to: reducing the size of the project; establishing buffer zones to protect aquatic resource values; and replacing the loss of aquatic resource values by creating, restoring, and enhancing similar functions and values. In addition, mitigation must address impacts and cannot be used to offset the acreage of wetland losses that would occur in order to meet the acreage limits of some of the nationwide permits (e.g. 5 acres of wetlands cannot be created to change a 6 acre loss of wetlands to a 1 acre loss; however, the 5 created acres can be used to reduce the impacts of the 6 acre loss).

Section 404 Only Conditions

In addition to the General Conditions, the following conditions apply only to activities that involve the discharge of dredged or fill material and must be followed in order for authorization by the nationwide permits to be valid:

1. *Water supply intakes.* No discharge of dredged or fill material may occur in the proximity of a public water supply intake except where the discharge is for repair of the public water supply intake structures or adjacent bank stabilization.

2. *Shellfish production.* No discharge of dredged or fill material may occur in areas of concentrated shellfish production, unless the discharge is directly

related to a shellfish harvesting activity authorized by nationwide permit 4.

3. *Suitable material*. No discharge of dredged or fill material may consist of unsuitable material (e.g., trash, debris, car bodies, etc.) and material discharged must be free from toxic pollutants in toxic amounts (see section 307 of the Clean Water Act).

4. *Mitigation*. Discharges of dredged or fill material into waters of the United States must be minimized or avoided to the maximum extent practicable at the project site (i.e. on-site), unless the DE has approved a compensation mitigation plan for the specific regulated activity.

5. *Spawning areas*. Discharges in spawning areas during spawning seasons must be avoided to the maximum extent practicable.

6. *Obstruction of high flows*. To the maximum extent practicable, discharges must not permanently restrict or impede the passage of normal or expected high flows or cause the relocation of the water (unless the primary purpose of the fill is to impound waters).

7. *Adverse impacts from impoundments*. If the discharge creates an impoundment of water, adverse impacts on the aquatic system caused by the accelerated passage of water and/or the restriction of its flow shall be minimized to the maximum extent practicable.

8. *Waterfowl breeding areas*. Discharges into breeding areas for migratory waterfowl must be avoided to the maximum extent practicable.

9. *Removal of temporary fills*. Any temporary fills must be removed in their entirety and the affected areas returned to their preexisting elevation.

PART 334—DANGER ZONE AND RESTRICTED AREA REGULATIONS

Sec.

EXHIBIT M

(b) List of pollutants

(1) Initial list

The Congress establishes for purposes of this section a list of hazardous air pollutants as follows:

CAS number	Chemical name
75070	Acetaldehyde
60355	Acetamide
75058	Acetonitrile
98862	Acetophenone
53963	2-Acetylaminofluorene
107028	Acrolein
79061	Acrylamide
79107	Acrylic acid
107131	Acrylonitrile
107051	Allyl chloride
92671	4-Aminobiphenyl
62533	Aniline
90040	o-Anisidine
1332214	Asbestos
71432	Benzene (including benzene from gasoline)
92875	Benzidine
98077	Benzotrichloride
100447	Benzyl chloride
92524	Biphenyl
117817	Bis(2-ethylhexyl)phthalate (DEHP)
542881	Bis(chloromethyl)ether
75252	Bromoform
106990	1,3-Butadiene
156627	Calcium cyanamide
105602	Caprolactam
133062	Captan
63252	Carbaryl
75150	Carbon disulfide
56235	Carbon tetrachloride
463581	Carbonyl sulfide
120809	Catechol
133904	Chloramben
57749	Chlordane
7782505	Chlorine
79118	Chloroacetic acid
532274	2-Chloroacetophenone
108907	Chlorobenzene
510156	Chlorobenzilate
67663	Chloroform
107302	Chloromethyl methyl ether
126998	Chloroprene
1319773	Cresols/Cresylic acid (isomers and mixture)
95487	o-Cresol
108394	m-Cresol
106445	p-Cresol
98828	Cumene
94757	2,4-D, salts and esters
3547044	DDE
334883	Diazomethane
132649	Dibenzofurans
96128	1,2-Dibromo-3-chloropropane
84742	Dibutylphthalate
106467	1,4-Dichlorobenzene(p)
91941	3,3-Dichlorobenzidene
111444	Dichloroethyl ether (Bis(2-chloroethyl)ether)
542756	1,3-Dichloropropene
62737	Dichlorvos
111422	Diethanolamine
121697	N,N-Diethyl aniline (N,N-Dimethylaniline)
64675	Diethyl sulfate
119904	3,3-Dimethoxybenzidine
60117	Dimethyl aminoazobenzene
119937	3,3'-Dimethyl benzidine
79447	Dimethyl carbamoyl chloride
68122	Dimethyl formamide
57147	1,1-Dimethyl hydrazine
131113	Dimethyl phthalate
77781	Dimethyl sulfate
534521	4,6-Dinitro-o-cresol, and salts
51285	2,4-Dinitrophenol
121142	2,4-Dinitrotoluene
123911	1,4-Dioxane (1,4-Diethyleneoxide)
122667	1,2-Diphenylhydrazine
106898	Epichlorohydrin (l-Chloro-2,3-epoxypropane)
106887	1,2-Epoxybutane
140885	Ethyl acrylate
100414	Ethyl benzene
51796	Ethyl carbamate (Urethane)
75003	Ethyl chloride (Chloroethane)
106934	Ethylene dibromide (Dibromoethane)
107062	Ethylene dichloride (1,2-Dichloroethane)
107211	Ethylene glycol
151564	Ethylene imine (Aziridine)
75218	Ethylene oxide
96457	Ethylene thiourea
75343	Ethylidene dichloride (1,1-Dichloroethane)
50000	Formaldehyde

[1] See References in Text note below.

CAS number	Chemical name
76448	Heptachlor
118741	Hexachlorobenzene
87683	Hexachlorobutadiene
77474	Hexachlorocyclopentadiene
67721	Hexachloroethane
822060	Hexamethylene-1,6-diisocyanate
680319	Hexamethylphosphoramide
110543	Hexane
302012	Hydrazine
7647010	Hydrochloric acid
7664393	Hydrogen fluoride (Hydrofluoric acid)
123319	Hydroquinone
78591	Isophorone
58899	Lindane (all isomers)
108316	Maleic anhydride
67561	Methanol
72435	Methoxychlor
74839	Methyl bromide (Bromomethane)
74873	Methyl chloride (Chloromethane)
71556	Methyl chloroform (1,1,1-Trichloroethane)
78933	Methyl ethyl ketone (2-Butanone)
60344	Methyl hydrazine
74884	Methyl iodide (Iodomethane)
108101	Methyl isobutyl ketone (Hexone)
624839	Methyl isocyanate
80626	Methyl methacrylate
1634044	Methyl tert butyl ether
101144	4,4-Methylene bis(2-chloroaniline)
75092	Methylene chloride (Dichloromethane)
101688	Methylene diphenyl diisocyanate (MDI)
101779	4,4′-Methylenedianiline
91203	Naphthalene
98953	Nitrobenzene
92933	4-Nitrobiphenyl
100027	4-Nitrophenol
79469	2-Nitropropane
684935	N-Nitroso-N-methylurea
62759	N-Nitrosodimethylamine
59892	N-Nitrosomorpholine
56382	Parathion
82688	Pentachloronitrobenzene (Quintobenzene)
87865	Pentachlorophenol
108952	Phenol
106503	p-Phenylenediamine
75445	Phosgene
7803512	Phosphine
7723140	Phosphorus
85449	Phthalic anhydride
1336363	Polychlorinated biphenyls (Aroclors)
1120714	1,3-Propane sultone
57578	beta-Propiolactone
123386	Propionaldehyde
114261	Propoxur (Baygon)
78875	Propylene dichloride (1,2-Dichloropropane)
75569	Propylene oxide
75558	1,2-Propylenimine (2-Methyl aziridine)
91225	Quinoline
106514	Quinone
100425	Styrene
96093	Styrene oxide
1746016	2,3,7,8-Tetrachlorodibenzo-p-dioxin
79345	1,1,2,2-Tetrachloroethane
127184	Tetrachloroethylene (Perchloroethylene)
7550450	Titanium tetrachloride
108883	Toluene
95807	2,4-Toluene diamine
584849	2,4-Toluene diisocyanate
95534	o-Toluidine
8001352	Toxaphene (chlorinated camphene)
120821	1,2,4-Trichlorobenzene
79005	1,1,2-Trichloroethane
79016	Trichloroethylene
95954	2,4,5-Trichlorophenol
88062	2,4,6-Trichlorophenol
121448	Triethylamine
1582098	Trifluralin
540841	2,2,4-Trimethylpentane
108054	Vinyl acetate
593602	Vinyl bromide
75014	Vinyl chloride
75354	Vinylidene chloride (1,1-Dichloroethylene)
1330207	Xylenes (isomers and mixture)
95476	o-Xylenes
108383	m-Xylenes
106423	p-Xylenes
0	Antimony Compounds
0	Arsenic Compounds (inorganic including arsine)
0	Beryllium Compounds
0	Cadmium Compounds
0	Chromium Compounds
0	Cobalt Compounds
0	Coke Oven Emissions
0	Cyanide Compounds [1]
0	Glycol ethers [2]
0	Lead Compounds
0	Manganese Compounds
0	Mercury Compounds
0	Fine mineral fibers [3]
0	Nickel Compounds
0	Polycylic Organic Matter [4]
0	Radionuclides (including radon)
0	Selenium Compounds

NOTE: For all listings above which contain the word "compounds" and for glycol ethers, the following applies: Unless otherwise specified, these listings are defined as including any unique chemical substance that contains the named chemical (i.e., antimony, arsenic, etc.) as part of that chemical's infrastructure.

[1] X′CN where X = H′ or any other group where a formal dissociation may occur. For example KCN or Ca(CN)2.

[2] Includes mono- and di- ethers of ethylene glycol, diethylene glycol, and triethylene glycol R-(OCH2CH2)n-OR′ where

n = 1, 2, or 3

R = alkyl or aryl groups

R′ = R, H, or groups which, when removed, yield glycol ethers with the structure: R-(OCH2CH)n-OH. Polymers are excluded from the glycol category.

[3] Includes mineral fiber emissions from facilities manufacturing or processing glass, rock, or slag fibers (or other mineral derived fibers) of average diameter 1 micrometer or less.

[4] Includes organic compounds with more than one benzene ring, and which have a boiling point greater than or equal to 100°C.

[5] A type of atom which spontaneously undergoes radioactive decay.

EXHIBIT N

Subpart F—[Reserved]

Subpart G—PCB Spill Cleanup Policy

SOURCE: 52 FR 10705, Apr. 2, 1987, unless otherwise noted.

§761.120 Scope.

(a) *General.* This policy establishes criteria EPA will use to determine the adequacy of the cleanup of spills resulting from the release of materials containing PCBs at concentrations of 50 ppm or greater. The policy applies to spills which occur after May 4, 1987.

(1) Existing spills (spills which occurred prior to May 4, 1987, are excluded from the scope of this policy for two reasons:

(i) For old spills which have already been discovered, this policy is not intended to require additional cleanup where a party has already cleaned a spill in accordance with requirements imposed by EPA through its regional offices, nor is this policy intended to interfere with ongoing litigation of enforcement actions which bring into issue PCB spills cleanup.

(ii) EPA recognizes that old spills which are discovered after the effective date of this policy will require site-by-site evaluation because of the likelihood that the site involves more pervasive PCB contamination than fresh spills and because old spills are generally more difficult to clean up than fresh spills (particularly on porous surfaces such as concrete). Therefore, spills which occurred before the effective date of this policy are to be decontaminated to requirements established at the discretion of EPA, usually through its regional offices.

(2) EPA expects most PCB spills subject to the TSCA PCB regulations to conform to the typical spill situations considered in developing this policy. This policy does, however, exclude from application of the final numerical cleanup standards certain spill situations from its scope: Spills directly into surface waters, drinking water, sewers, grazing lands, and vegetable gardens. These types of spills are subject to final cleanup standards to be established at the discretion of the regional office. These spills are, however, subject to the immediate notification requirements and measures to minimize further environmental contamination.

(3) For all other spills, EPA generally expects the decontamination standards of this policy to apply. Occasionally, some small percentage of spills covered by this policy may warrant more stringent cleanup requirements because of additional routes of exposure or significantly greater exposures than those assumed in developing the final cleanup standards of this policy. While the EPA regional offices have the authority to require additional cleanup in these circumstances, the Regional Administrator must first make a finding based on the specific facts of a spill that additional cleanup must occur to prevent unreasonable risk. In addition, before a final decision is made to require additional cleanup, the Regional Administrator must notify the Director, Office of Pollution Prevention and Toxics at Headquarters of his/her finding and the basis for the finding.

(4) There may also be exceptional spill situations that requires less stringent cleanup or a different approach to cleanup because of factors associated with the particular spill. These factors may mitigate expected exposures and risks or make cleanup to these requirements impracticable.

(b) *Spills that may require more stringent cleanup levels.* For spills within the scope of this policy, EPA generally retains, under §761.135, the authority to require additional cleanup upon finding that, despite good faith efforts by the responsible party, the numerical decontamination levels in the policy have not been met. In addition, EPA foresees the possibility of exceptional spill situations in which site-specific risk factors may warrant additional cleanup to more stringent numerical decontamination levels than are required by the policy. In these situations, the Regional Administrator has the authority to require cleanup to levels lower than those included in this policy upon finding that further cleanup must occur to prevent unreasonable risk. The Regional Administrator will consult with the Director, Office of Pollution Prevention and Toxics, prior to making such a finding.

(1) For example, site-specific characteristics, such as short depth to ground water, type of soil, or the presence of a shallow well, may pose exceptionally high potential for ground water contamination by PCBs remaining after cleanup to the standards specified in this policy. Spills that pose such a high degree of potential for ground water contamination have not been excluded from the policy under paragraph (d) of this section because the presence of such potential may not be readily apparent. EPA feels that automatically excluding such spills from the scope of the policy could result in the delay of cleanup—a particularly undesirable outcome if potential ground water contamination is, in fact, a significant concern.

(2) In those situations, the Regional Administrator may require cleanup in addition to that required under §761.125 (b) and (c). However, the Regional Administrator must first make a finding, based on the specific facts of a spill, that additional cleanup is necessary to prevent unreasonable risk. In addition, before making a final decision on additional cleanup, the Regional Administrator must notify the Director of the Office of Pollution Prevention and Toxics of his finding and the basis for the finding.

(c) *Flexibility to allow less stringent or alternative requirements.* EPA retains the flexibility to allow less stringent or alternative decontamination measures based upon site-specific considerations. EPA will exercise this flexibility if the responsible party demonstrates that cleanup to the numerical decontamination levels is clearly unwarranted because of risk-mitigating factors, that compliance with the procedural requirements or numerical standards in the policy is impracticable at a particular site, or that site-specific characteristics make the costs of cleanup prohibitive. The Regional Administrator will notify the Director of OPPT of any decision and the basis for the decision to allow less stringent cleanup. The purpose of this notification is to enable the Director of OPPT to ensure consistency of spill cleanup standards under special circumstances across the regions.

(d) *Excluded spills.* (1) Although the spill situations in paragraphs (d)(2) (i) through (vi) of this section are excluded from the automatic application of final decontamination standards under §761.125 (b) and (c), the general requirements under §761.125(a) do apply to these spills. In addition, all of these excluded situations require practicable, immediate actions to contain the area of contamination. While these situations may not always require more stringent cleanup measures, the Agency is excluding these scenarios because they will always involve significant factors that may not be adequately addressed by cleanup standards based upon typical spill characteristics.

(2) For the spill situations in paragraphs (d)(2)(i) through (vi) of this section, the responsible party shall decontaminate the spill in accordance with site-specific requirements established by the EPA regional offices.

(i) Spills that result in the direct contamination of surface waters (surface waters include, but are not limited to, "waters of the United States" as defined in Part 122 of this chapter, ponds, lagoons, wetlands, and storage reservoirs).

(ii) Spills that result in the direct contamination of sewers or sewage treatment systems.

(iii) Spills that result in the direct contamination of any private or public drinking water sources or distribution systems.

(iv) Spills which migrate to and contaminate surface waters, sewers, or drinking water supplies before cleanup has been completed in accordance with this policy.

(v) Spills that contaminate animal grazing lands.

(vi) Spills that contaminate vegetable gradens.

(e) *Relationship of policy to other statutes.* (1) This policy does not affect cleanup standards or requirements for the reporting of spills imposed, or to be imposed, under other Federal statutory authorities, including but not limited to, the Clean Water Act (CWA), the Resource Conservation and Recovery Act (RCRA), and the Comprehensive Environmental Response Compensation and Liability Act of 1980 (CERCLA) as amended by the Superfund Amendments and Reauthorization Act (SARA). Where more than one requirement applies, the stricter standard must be met.

(2) The Agency recognizes that the existence of this policy will inevitably result in attempts to apply the standards to situations within the scope of other statutory authorities. However, other statutes require the Agency to consider different or alternative factors in determining appropriate corrective actions. In addition, the types and magnitudes of exposures associated with sites requiring corrective action under other statutes often involve important differences from those expected of the typical, electrical equipment-type spills considered in developing this policy. Thus, cleanups under other statutes, such as RCRA corrective actions or remedial and response actions under SARA may result in different outcomes.

§761.123 Definitions.

For purposes of this policy, certain words and phrases are used to denote specific materials, procedures, or circumstances. The following definitions are provided for purposes of clarity and are not to be taken as exhaustive lists of situations and materials covered by the policy.

Double wash/rinse means a minimum requirement to cleanse solid surfaces (both impervious and nonimpervious) two times with an appropriate solvent or other material in which PCBs are at least 5 percent soluble (by weight). A volume of PCB-free fluid sufficient to cover the contaminated surface completely must be used in each wash/rinse. The wash/rinse requirement does not mean the mere spreading of solvent or other fluid over the surface, nor does the requirement mean a once-over wipe with a soaked cloth. Precautions must be taken to contain any runoff resulting from the cleansing and to dispose properly of wastes generated during the cleansing.

High-concentration PCBs means PCBs that contain 500 ppm or greater PCBs, or those materials which EPA requires to be assumed to contain 500 ppm or greater PCBs in the absence of testing.

High-contact industrial surface means a surface in an industrial setting which is repeatedly touched, often for relatively long periods of time. Manned machinery and control panels are examples of high-contact industrial surfaces. High-contact industrial surfaces are generally of impervious solid material. Examples of low-contact industrial surfaces include ceilings, walls, floors, roofs, roadways and sidewalks in the industrial area, utility poles, unmanned machinery, concrete pads beneath electrical equipment, curbing, exterior structural building components, indoor vaults, and pipes.

High-contact residential/commercial surface means a surface in a residential/commercial area which is repeatedly touched, often for relatively long periods of time. Doors, wall areas below 6 feet in height, uncovered flooring, windowsills, fencing, bannisters, stairs, automobiles, and children's play areas such as outdoor patios and sidewalks are examples of high-contact residential/commercial surfaces. Examples of low-contact residential/commercial surfaces include interior ceilings, interior wall areas above 6 feet in height, roofs, asphalt roadways, concrete roadways, wooden utility poles, unmanned machinery, concrete pads beneath electrical equipment, curbing, exterior structural building components (e.g., aluminum/vinyl siding, cinder block, asphalt tiles), and pipes.

Impervious solid surfaces means solid surfaces which are nonporous and thus unlikely to absorb spilled PCBs within the short period of time required for cleanup of spills under this policy. Impervious solid surfaces include, but are not limited to, metals, glass, aluminum siding, and enameled or laminated surfaces.

Low-concentration PCBs means PCBs that are tested and found to contain less than 500 ppm PCBs, or those PCB-containing materials which EPA requires to be assumed to be at concentrations below 500 ppm (i.e., untested mineral oil dielectric fluid).

Nonimpervious solid surfaces means solid surfaces which are porous and are more likely to absorb spilled PCBs prior to completion of the cleanup requirements prescribed in this policy. Nonimpervious solid surfaces include, but are not limited to, wood, concrete, asphalt, and plasterboard.

Nonrestricted access areas means any area other than restricted access, outdoor electrical substations, and other restricted access locations, as defined in this section. In addition to residential/commercial areas, these areas include unrestricted access rural areas (areas of low density development and population where access is uncontrolled by either man-made barriers or naturally occurring barriers, such as rough terrain, mountains, or cliffs).

Other restricted access (nonsubstation) locations means areas other than electrical substations that are at least 0.1 kilometer (km) from a residential/commercial area and limited by man-made barriers (e.g., fences and walls) to substantially limited by naturally occurring barriers such as mountains, cliffs, or rough terrain. These areas generally include industrial facilities and extremely remote rural locations. (Areas where access is restricted but are less than 0.1 km from a residential/commercial area are considered to be residential/commercial areas.)

Outdoor electrical substations means outdoor, fenced-off, and restricted access areas used in the transmission and/or distribution of electrical power Outdoor electrical substations restrict public access by being fenced or walled off as defined under §761.30(l)(1)(ii). For purposes of this TSCA policy, outdoor electrical substations are defined as being located at least 0.1 km from a residential/commercial area. Outdoor fenced-off and restricted access areas used in the transmission and/or distribution of electrical power which are located less than 0.1. km from a residential/commercial area are considered to be residential/commercial areas.

PCBs means polychlorinated biphenyls as defined under §761.3. As specified under §761.1(b), no requirements may be avoided through dilution of the PCB concentration.

Requirements and standards means:

(1) "Requirements" as used in this policy refers to both the procedural responses and numerical decontamination levels set forth in this policy as constituting adequate cleanup of PCBs.

(2) "Standards" refers to the numerical decontamination levels set forth in this policy.

Residential/commercial areas means those areas where people live or reside, or where people work in other than manufacturing or farming industries. Residential areas include housing and the property on which housing is located, as well as playgrounds, roadways, sidewalks, parks, and other similar areas within a residential community. Commercial areas are typically accessible to both members of the general public and employees and include public assembly properties, institutional properties, stores, office buildings, and transportation centers.

Responsible party means the owner of the PCB equipment, facility, or other source of PCBs or his/her designated agent (e.g., a facility manager or foreman).

Soil means all vegetation, soils and other ground media, including but not limited to, sand, grass , gravel, and oyster shells. It does not include concrete and asphalt.

Spill means both intentional and unintentional spills, leaks, and other uncontrolled discharges where the release results in any quantity of PCBs running off or about to run off the external surface of the equipment or other PCB source, as well as the contamination resulting from those releases. This policy applies to spills of 50 ppm or

greater PCBs. The concentration of PCBs spilled is determined by the PCB concentration in the material spilled as opposed to the concentration of PCBs in the material onto which the PCBs were spilled. Where a spill of untested mineral oil occurs, the oil is presumed to contain greater than 50 ppm, but less than 500 ppm PCBs and is subject to the relevant requirements of this policy.

Spill area means the area of soil on which visible traces of the spill can be observed plus a buffer zone of 1 foot beyond the visible traces. Any surface or object (e.g., concrete sidewalk or automobile) within the visible traces area or on which visible traces of the spilled material are observed is included in the spill area. This area represents the minimum area assumed to be contaminated by PCBs in the absence of precleanup sampling data and is thus the minimum area which must be cleaned.

Spill boundaries means the actual area of contamination as determined by postcleanup verification sampling or by precleanup sampling to determine actual spill boundaries. EPA can require additional cleanup when necessary to decontaminate all areas within the spill boundaries to the levels required in this policy (e.g., additional cleanup will be required if postcleanup sampling indicates that the area decontaminated by the responsible party, such as the spill area as defined in this section, did not encompass the actual boundaries of PCB contamination).

Standard wipe test means, for spills of high-concentration PCBs on solid surfaces, a cleanup to numerical surface standards and sampling by a standard wipe test to verify that the numerical standards have been met. This definition constitutes the minimum requirements for an appropriate wipe testing protocol. A standard-size template (10 centimeters (cm) x 10 cm) will be used to delineate the area of cleanup; the wiping medium will be a gauze pad or glass wool of known size which has been saturated with hexane. It is important that the wipe be performed very quickly after the hexane is exposed to air. EPA strongly recommends that the gauze (or glass wool) be prepared with hexane in the laboratory and that the wiping medium be stored in sealed glass vials until it is used for the wipe test. Further, EPA requires the collection and testing of field blanks and replicates.

[52 FR 10705, Apr. 2, 1987; 52 FR 23397, June 19, 1987]

§761.125 Requirements for PCB spill cleanup.

(a) *General.* Unless expressly limited, the reporting, disposal, and precleanup sampling requirements in paragraphs (a) (1) through (3) of this section apply to all spills of PCBs at concentrations of 50 ppm or greater which are subject to decontamination requirements under TSCA, including those spills listed under §761.120(b) which are excluded from the cleanup standards at paragraphs (b) and (c) of this section.

(1) *Reporting requirements.* The reporting in paragraphs (a)(1) (i) through (iv) of this section is required in addition to applicable reporting requirements under the Clean Water Act (CWA) or the Comprehensive Environmental Response Compensation and Liability Act of 1980 (CERCLA). For example, under the National Contingency Plan all spills involving 10 pounds or more by weight of PCBs must currently be reported to the National Response Center (1-800-424-8802). The requirements in paragraphs (a)(1) (i) through (iv) of this section are designed to be consistent with existing reporting requirements to the extent possible so as to minimize reporting burdens on governments as well as the regulated community.

(i) Where a spill directly contaminates surface water, sewers, or drinking water supplies, as discussed under §761.120(d), the responsible party shall notify the appropriate EPA regional office (the Office of Prevention, Pesticides and Toxic Substances Branch) and obtain guidance for appropriate cleanup measures in the shortest possible time after discovery, but in no case later than 24 hours after discovery.

(ii) Where a spill directly contaminates grazing lands or vegetable gardens, as discussed under §761.120(d), the responsible party shall notify the appropriate EPA regional office (the Office of Prevention, Pesticides and Toxic Substances Branch) and proceed with the immediate requirements specified under paragraph (b) or (c) of this section, depending on the source of the spill, in the shortest possible time after discovery, but in no case later than 24 hours after discovery.

(iii) Where a spill exceeds 10 pounds of PCBs by weight and is not addressed in paragraph (a)(1) (i) or (ii) of this section, the responsible party will notify the appropriate EPA regional office (Pesticides and Toxic Substances Branch) and proceed to decontaminate the spill area in accordance with this TSCA policy in the shortest possible time after discovery, but in no case later than 24 hours after discovery.

(iv) Spills of 10 pounds or less, which are not addressed in paragraph (a)(1) (i) or (ii) of this section, must be cleaned up in accordance with this policy (in order to avoid EPA enforcement liability), but notification of EPA is not required.

(2) *Disposal of cleanup debris and materials.* All concentrated soils, solvents, rags, and other materials resulting from the cleanup of PCBs under this policy shall be properly stored, labeled, and disposed of in accordance with the provisions of §761.60.

(3) *Determination of spill boundaries in the absence of visible traces.* For spills where there are insufficient visible traces yet there is evidence of a leak or spill, the boundaries of the spill are to be determined by using a statistically based sampling scheme.

(b) *Requirements for cleanup of low-concentration spills which involve less than 1 pound of PCBs by weight (less than 270 gallons of untested mineral oil)*—(1) *Decontamination requirements.* Spills of less than 270 gallons of untested mineral oil, low-concentration PCBs, as defined under §761.123, which involve less than 1 pound of PCBs by weight (e.g., less than 270 gallons of untested mineral oil containing less than 500 ppm PCBs) shall be cleaned in the following manner:

(i) Solid surfaces must be double washed/rinsed (as defined under §761.123); except that all indoor, residential surfaces other than vault areas must be cleaned to 10 micrograms per 100 square centimeters (10 μg/100 cm^2) by standard commercial wipe tests.

(ii) All soil within the spill area (i.e., visible traces of soil and a buffer of 1 lateral foot around the visible traces) must be excavated, and the ground be restored to its original configuration by back-filling with clean soil (i.e., containing less than 1 ppm PCBs).

(iii) Requirements of paragraphs (b)(1) (i) and (ii) of this section must be completed within 48 hours after the responsible party was notified or became aware of the spill.

(2) *Effect of emergency or adverse weather.* Completion of cleanup may be delayed beyond 48 hours in case of circumstances including but not limited to, civil emergency, adverse weather conditions, lack of access to the site, and emergency operating conditions. The occurrence of a spill on a weekend or overtime costs are not acceptable reasons to delay response. Completion of cleanup may be delayed only for the duration of the adverse conditions. If the adverse weather conditions, or time lapse due to other emergency, has left insufficient visible traces, the responsible party must use a statistically based sampling scheme to determine the spill boundaries as required under paragraph (a)(3) of this section.

(3) *Records and certification.* At the completion of cleanup, the responsible party shall document the cleanup with records and certification of decontamination. The records and certification must be maintained for a period of 5 years. The records and certification shall consist of the following:

(i) Identification of the source of the spill (e.g., type of equipment).

(ii) Estimated or actual date and time of the spill occurrence.

(iii) The date and time cleanup was completed or terminated (if cleanup was delayed by emergency or adverse weather: the nature and duration of the delay).

(iv) A brief description of the spill location.

(v) Precleanup sampling data used to establish the spill boundaries if required because of insufficient visible traces, and a brief description of the sampling methodology used to establish the spill boundaries.

(vi) A brief description of the solid surfaces cleaned and of the double wash/rinse method used.

(vii) Approximate depth of soil excavation and the amount of soil removed.

(viii) A certification statement signed by the responsible party stating that the cleanup requirements have been met and that the information contained in the record is true to the best of his/her knowledge.

(ix) While not required for compliance with this policy, the following information would be useful if maintained in the records:

(A) Additional pre- or post-cleanup sampling.

(B) The estimated cost of the cleanup by man-hours, dollars, or both.

(c) *Requirements for cleanup of high-concentration spills and low-concentration spills involving 1 pound or more PCBs by weight (270 gallons or more of untested mineral oil).* Cleanup of low-concentration spills involving 1 lb or more PCBs by weight and of all spills of materials other than low-concentration materials shall be considered complete if all of the immediate requirements, cleanup standards, sampling, and recordkeeping requirements of paragraphs (c) (1) through (5) of this section are met.

(1) *Immediate requirements.* The four actions in paragraphs (c)(1) (i) through (iv) of this section must be taken as quickly as possible and within no more than 24 hours (or within 48 hours for PCB Transformers) after the responsible party was notified or became aware of the spill, except that actions described in paragraphs (c)(1) (ii) through (iv) of this section can be delayed beyond 24 hours if circumstances (e.g., civil emergency, hurricane, tornado, or other similar adverse weather conditions, lack of access due to physical impossibility, or emergency operating conditions) so require for the duration of the adverse conditions. The occurrence of a spill on a weekend or overtime costs are not acceptable reasons to delay response. Owners of spilled PCBs who have delayed cleanup because of these types of circumstances must keep records documenting the fact that circumstances precluded rapid response.

(i) The responsible party shall notify the EPA regional office and the NRC as required by §761.125(a)(1) or by other applicable statutes.

(ii) The responsible party shall effectively cordon off or otherwise delineate and restrict an area encompassing any visible traces plus a 3-foot buffer and place clearly visible signs advising persons to avoid the area to minimize the spread of contamination as well as the potential for human exposure.

(iii) The responsible party shall record and document the area of visible contamination, noting the extent of the visible trace areas and the center of the visible trace area. If there are no visible traces, the responsible party shall record this fact and contact the regional office of the EPA for guidance in completing statistical sampling of the spill area to establish spill boundaries.

(iv) The responsible party shall initiate cleanup of all visible traces of the fluid on hard surfaces and initiate removal of all visible traces of the spill on soil and other media, such as gravel, sand, oyster shells, etc.

(v) If there has been a delay in reaching the site and there are insufficient visible traces of PCBs remaining at the spill site, the responsible party must estimate (based on the amount of material missing from the equipment or container) the area of the spill and immediately cordon off the area of suspect contamination. The responsible party must then utilize a statistically based sampling scheme to identify the boundaries of the spill area as soon as practicable.

(vi) Although this policy requires certain immediate actions, as described in paragraphs (c)(1)(i) through (iv) of this section, EPA is not placing a time limit on completion of the cleanup effort since the time required for completion will vary from case to case. However, EPA expects that decontamination will be achieved promptly in all cases and will consider promptness of completion in determining whether the responsible party made good faith efforts to clean up in accordance with this policy.

(2) *Requirements for decontaminating spills in outdoor electrical substations.* Spills which occur in outdoor electrical substations, as defined under §761.123, shall be decontaminated in accordance with paragraphs (c)(2)(i) and (ii) of this section. Conformance to the cleanup

standards under paragraphs (c)(2)(i) and (ii) of this section shall be verified by post-cleanup sampling as specified under §761.130. At such times as outdoor electrical substations are converted to another use, the spill site shall be cleaned up to the nonrestricted access requirements under paragraph (c)(4) of this section.

(i) Contaminated solid surfaces (both impervious and non-impervious) shall be cleaned to a PCB concentration of 100 micrograms (µg)/100 square centimeters (cm^2) (as measured by standard wipe tests).

(ii) At the option of the responsible party, soil contaminated by the spill will be cleaned either to 25 ppm PCBs by weight, or to 50 ppm PCBs by weight provided that a label or notice is visibly placed in the area. Upon demonstration by the responsible party that cleanup to 25 ppm or 50 ppm will jeopardize the integrity of the electrical equipment at the substation, the EPA regional office may establish an alternative cleanup method or level and place the responsible party on a reasonably timely schedule for completion of cleanup.

(3) *Requirements for decontaminating spills in other restricted access areas.* Spills which occur in restricted access locations other than outdoor electrical substations, as defined under §761.123, shall be decontaminated in accordance with paragraphs (c)(3) (i) through (v) of this section. Conformance to the cleanup standards in paragraphs (c)(3) (i) through (v) of this section shall be verified by postcleanup sampling as specified under §761.130. At such times as restricted access areas other than outdoor electrical substations are converted to another use, the spill site shall be cleaned up to the nonrestricted access area requirements of paragraph (c)(4) of this section.

(i) High-contact solid surfaces, as defined under §761.163 shall be cleaned to 10 µg/100 cm^2 (as measured by standard wipe tests).

(ii) Low-contact, indoor, impervious solid surfaces will be decontaminated to 10 µg/100 cm^2.

(iii) At the option of the responsible party, low-contact, indoor, nonimpervious surfaces will be cleaned either to 10 µg/100 cm^2 or to 100 µg/100 cm^2 and encapsulated. The Regional Admin trator, however, retains the authori to disallow the encapsulation opti for a particular spill situation up finding that the uncertainties asso ated with that option pose special co cerns at that site. That is, the R gional Administrator would not perm encapsulation if he/she determined th if the encapsulation failed the failu would create an imminent hazard the site.

(iv) Low-contact, outdoor surfac (both impervious and nonimperviou shall be cleaned to 100 µg/100 cm^2.

(v) Soil contaminated by the sp will be cleaned to 25 ppm PCBs weight.

(4) *Requirements for decontaminati spills in nonrestricted access areas.* Spil which occur in nonrestricted access l cations, as defined under §761.123, sh be decontaminated in accordance wi paragraphs (c)(4)(i) through (v) of th section. Conformance to the clean standards at paragraphs (c)(4) through (v) of this section shall verified by postcleanup sampling specified under §761.130.

(i) Furnishings, toys, and other ea ily replaceable household items sh be disposed of in accordance with t provisions of §761.60 and replaced the responsible party.

(ii) Indoor solid surfaces and hig contact outdoor solid surfaces, defin as high contact residential/commerci surfaces under §761.123, shall be clean to 10 µg/100 cm^2 (as measured by stan ard wipe tests).

(iii) Indoor vault areas and low-co tact, outdoor, impervious solid surfac shall be decontaminated to 10 µg/1 cm^2.

(iv) At the option of the responsib party, low-contact, outdoor, nonimpe vious solid surfaces shall be eith cleaned to 10 µg/100 cm^2 or cleaned 100 µg/100 cm^2 and encapsulated. Th Regional Administrator, however, r tains the authority to disallow the e capsulation option for a particular sp situation upon finding that the unce tainties associated with that optic pose special concerns at that site. Th is, the Regional Administrator woul not permit encapsulation if he/she d termined that if the encapsulatio

failed the failure would create an imminent hazard at the site.

(v) Soil contaminated by the spill will be decontaminated to 10 ppm PCBs by weight provided that soil is excavated to a minimum depth of 10 inches. The excavated soil will be replaced with clean soil, i.e., containing less than 1 ppm PCBs, and the spill site will be restored (e.g., replacement of turf).

(5) *Records.* The responsible party shall document the cleanup with records of decontamination. The records must be maintained for a period of 5 years. The records and certification shall consist of the following:

(i) Identification of the source of the spill, e.g., type of equipment.

(ii) Estimated or actual date and time of the spill occurrence.

(iii) The date and time cleanup was completed or terminated (if cleanup was delayed by emergency or adverse weather: the nature and duration of the delay).

(iv) A brief description of the spill location and the nature of the materials contaminated. This information should include whether the spill occurred in an outdoor electrical substation, other restricted access location, or in a nonrestricted access area.

(v) Precleanup sampling data used to establish the spill boundaries if required because of insufficient visible traces and a brief description of the sampling methodology used to establish the spill boundaries.

(vi) A brief description of the solid surfaces cleaned.

(vii) Approximate depth of soil excavation and the amount of soil removed.

(viii) Postcleanup verification sampling data and, if not otherwise apparent from the documentation, a brief description of the sampling methodology and analytical technique used.

(ix) While not required for compliance with this policy, information on the estimated cost of cleanup (by man-hours, dollars, or both) would be useful if maintained in the records.

[52 FR 10705, Apr. 2, 1987, as amended at 53 FR 40884, Oct. 19, 1988]

§761.130 Sampling requirements.

Postcleanup sampling is required to verify the level of cleanup under §761.125(c) (2) through (4). The responsible party may use any statistically valid, reproducible, sampling scheme (either random samples or grid samples) provided that the requirements of paragraphs (a) and (b) of this section are satisfied.

(a) The sampling area is the greater of (1) an area equal to the area cleaned plus an additional 1-foot boundary, or (2) an area 20 percent larger than the original area of contamination.

(b) The sampling scheme must ensure 95 percent confidence against false positives.

(c) The number of samples must be sufficient to ensure that areas of contamination of a radius of 2 feet or more within the sampling area will be detected, except that the minimum number of samples is 3 and the maximum number of samples is 40.

(d) The sampling scheme must include calculation for expected variability due to analytical error.

(e) EPA recommends the use of a sampling scheme developed by the Midwest Research Institute (MRI) for use in EPA enforcement inspections: "Verification of PCB Spill Cleanup by Sampling and Analysis." Guidance for the use of this sampling scheme is available in the MRI report "Field Manual for Grid Sampling of PCB Spill Sites to Verify Cleanup." Both the MRI sampling scheme and the guidance document are available from the TSCA Assistance Office, Environmental Protection Agency, Rm. E-543, 401 M St. SW., Washington, DC 20460 (202-554-1404). The major advantage of this sampling scheme is that it is designed to characterize the degree of contamination within the entire sampling area with a high degree of confidence while using fewer samples than any other grid or random sampling scheme. This sampling scheme also allows some sites to be characterized on the basis of composite samples.

(f) EPA may, at its discretion, take samples from any spill site. If EPA's sampling indicates that the remaining concentration level exceeds the required level, EPA will require further cleanup. For this purpose, the numerical level of cleanup required for spills cleaned in accordance with §761.125(b) is deemed to be the equivalent of numerical cleanup requirements required for cleanups under §761.125(c)(2) through (4). Using its best engineering judgment, EPA may sample a statistically valid random or grid sampling technique, or both. When using engineering judgment or random "grab" samples, EPA will take into account that there are limits on the power of a grab sample to dispute statistically based sampling of the type required of the responsible party. EPA headquarters will provide guidance to the EPA regions on the degree of certainty associated with various grab sample results.

§761.135 Effect of compliance with this policy and enforcement.

(a) Although a spill of material containing 50 ppm or greater PCBs is considered improper PCB disposal, this policy establishes requirements that EPA considers to be adequate cleanup of the spilled PCBs. Cleanup in accordance with this policy means compliance with the procedural as well as the numerical requirements of this policy. Compliance with this policy creates a presumption against both enforcement action for penalties and the need for further cleanup under TSCA. The Agency reserves the right, however, to initiate appropriate action to compel cleanup where, upon review of the records of cleanup or EPA sampling following cleanup, EPA finds that the decontamination levels in the policy have not been achieved. The Agency also reserves the right to seek penalties where the Agency believes that the responsible party has not made a good faith effort to comply with all provisions of this policy, such as prompt notification of EPA of a spill, recordkeeping, etc.

(b) EPA's exercise of enforcement discretion does not preclude enforcement action under other provisions of TSCA or any other Federal statute. This includes, even in cases where the numerical decontamination levels set forth in this policy have been met, civil or criminal action for penalties where EPA believes the spill to have been the result of gross negligence or knowing violation.

EXHIBIT O

Collier, Shannon, Rill & Scott

Attorneys-at-Law
3050 K Street, N.W.
Suite 400
Washington, D.C. 20007

Tel.: (202) 342-8400
Fax: (202) 338-5534

747 Third Avenue
New York, New York 10017
Tel.: (212) 688-4800
Fax: (212) 688-6307

16-18 O'Connell Street
Level 3
Sydney, NSW 2000, Australia
Tel.: 61-2-223-6788
Fax: 61-2-223-2737

MEMORANDUM

September 11, 1995

TO: NATIONAL SHIPBUILDING RESEARCH PROGRAM

FROM: JOHN L. WITTENBORN
CHET M. THOMPSON
PETER G. McHUGH

RE: EPA'S PROPOSED PCB DISPOSAL RULE

In December 1994, the U.S. Environmental Protection Agency ("EPA") proposed to amend its polychlorinated biphenyl ("PCB") disposal regulations under the Toxic Substance Control Act ("TSCA"). 59 Fed. Reg. 62,788 (December 6, 1994). EPA's proposed amendments address all aspects of its current PCB regulations. However, the focus of this memorandum is on the effects of EPA's proposed PCB-contaminated soil disposal requirements. Below is a summary of the relevant provisions of the proposed rule.

I. BACKGROUND

A. Current Disposal Requirements for PCB-Contaminated Soil

The disposal of PCBs and PCB-contaminated soil is regulated by TSCA section 6(e). 15 U.S.C. § 2605(e). The federal PCB disposal requirements are codified at 40 C.F.R. § 761.60 and are generally applicable to PCBs in concentrations equal to or greater than 50 parts per million ("ppm"). The disposal and cleanup of PCBs are subject to the "anti-dilution" rule, which

means that PCB concentrations are determined by the concentration of the original PCB source (e.g., transformers) and not by the concentration found in the contaminated media. 40 C.F.R. §§ 761.l(b) and 761.120(a); see also 59 Fed. Reg. at 62,792-793. Thus, if the original PCB source had a PCB concentration equal to or greater than 50 ppm, PCB-contaminated soil would be a federally-regulated material even if the PCB concentration in the soil is below the 50 ppm threshold. In some states, PCB requirements apply to even lower concentrations. For example, a California shipyard was recently convicted for failure to cleanup PCBS in a tank and on the bern surrounding the tank where the PCBS exceeded a concentration of five ppm. People v. Triple A Machine Shop, Inc.. No. A059887, 1995 Haz. Waste Litig. Rptr. 28975 (Cal. Ct. App. June 30, 1995).

Pursuant to 40 C.F.R. § 761.60(a)(4), PCB-contaminated soil at concentrations of 50 ppm or greater must be disposed of: (1) in an incinerator that complies with section 761.70; or (2) in a chemical waste landfill that complies with section 761.75. EPA Regional Administrator, however, do have the authority to grant case-by-case variances.

B. <u>PCB Spill Cleanup Policy</u>

In 1987, EPA promulgated its PCB Spill Cleanup Policy (“Spill Policy”), set forth at 40 C.F.R. $761.120. The Spill Policy codifies the applicable cleanup standards for spills resulting from the release of materials containing PCBS at concentrations of 50 ppm or greater. The Spill Policy requires different cleanup standards depending upon the location of the PCB spills and the exposure potential. The Spill Policy applies more stringent cleanup requirements to “nonrestricted” areas than to “restricted” areas. For “restricted areas” (which include most

industrial areas). soils must be cleaned up to 25 ppm. All contaminated soils resulting from the cleanup of PCBS must be incinerated or disposed at a TSCA chemical waste landfill. Id. § 761.125(a)(2). EPA has the discretion to vary from the Spill Policy based on certain site-specific factors.

The Spill Policy applies to all spills that occurred after May 4,1987. Id. § 761.120(a)(l). However. most Regional Offices have procedures for facilities to apply for variances from the Spill Policy remediation requirements. Regional Offices also determine the cleanup standards for spills occurring prior to 1987, and generally require such "old" spills to meet the same cleanup standards as "recent" spills.

II. PROPOSED AMENDMENTS

EPA has proposed a number of modifications to the PCB disposal rules to "provide greater flexibility in addressing the disposal of PCBs where specific conditions would allow for different waste management activities" other than disposal via incineration or chemical waste landfills. 59 Fed. Reg. at 62,790 (Dec. 6, 1994). In the preamble to the proposed rule, EPA acknowledges that there are alternative disposal methods for certain categories of "large volume" non-PCB wastes that would not pose an unreasonable risk of injury to health or the environment. Id. at 62,791.

The term "large volume" waste refers to wastes that, in general, are generated or managed in greater volumes than when they were originally placed in service. Id. Thus, large volume wastes include such things as dredged materials, contaminated environmental media, industrial waste water treatment sludges, and demolition waste. EPA further subcategories large volume

wastes into “PCB remediation wastes” and “PCB non-remediation wastes.” EPA’s proposed disposal alternatives vary depending upon EPA’s characterization of the material.

A. PCB Remediation Waste

Pursuant to EPA’s proposed rule, “PCB remediation wastes” would include all contaminated environmental media; dredged materials; commercial or industrial sludges in or from any pollution control equipment and soil, rags, and other debris generated as the result of a spill cleanup. The focus of this memorandum is on the proposed disposal option for PCB-contaminated soil.

Pursuant to EPA’s proposal, the cleanup of PCBs could be addressed through one of three options: (1) self-implementing option, (2) performance-based option, and (3) risk-based option.

1. Self-imnlementing option

The proposed self-implementing option is modeled after the 1987 PCB Spill Cleanup Policy (discussed above) and would apply to the cleanup and disposal of all PCB remediation wastes, regardless of when the spill occurred. Similar to the Spill Policy, this option would require that risk-based soil levels be achieved. However, in contrast to the Spill Policy, the proposed self-implementing option would be based on the current PCB concentration of the soil, not the concentration of the original source.

According to the proposed rule, the self-implementing option would not be applicable to the following:

(1) PCBS that migrate into, or spills that result in the direct contamination of

- surface and ground waters
- sediments in lakes, ponds, rivers, and streams

- sewers and sewage treatment systems
- any private or public drinking water sources
- grazing lands
- vegetable gardens
- areas having human populations;

(2) any site that appears on CERCLA'S National Priorities List ("NPL"), is subject to a RCRA Subtitle C permit, or is currently subject to any enforcement action under any statute administered by EPA.

Id. at 62,862.

The self-implementing remediation option proposes on-site disposal to specified cleanup levels of PCBS in the PCB remediation waste (contaminated soil). Three options are proposed: (1) capping higher residual levels; (2) "treating down" from higher levels to lower levels on-site using a non-chlorinated solvent washing process; and (3) microencapsulation or vitrification.

Under the self-implementing remediation option, cleanup levels would be more stringent for high exposure areas than for low exposure areas. High exposure areas include residential and commercial areas. Low exposure areas are located at least 0.1 kilometers away from residential and commercial areas.

a. Hiph-exposure areas

The specific cleanup levels for high-exposure areas depend on whether the remediation waste is "bulk remediation" waste or "non-porous" material. PCB-contaminated soil is included within the definition of bulk remediation waste. Unless otherwise specified under the rule, the general cleanup standard in high-exposure areas is one ppm. Cleanup of PCB-contaminated soil may be accomplished by one or more of the following:

(a) Remove and dispose of all PCB-contaminated soils with PCB concentrations greater than one ppm.

(b) Remove all PCB-contaminated soil with PCB concentrations greater than 10 ppm and place a clean (less than one ppm PCBS) soil cover of a uniform thickness of a minimum 25 centimeters over the site where PCBS remain in excess of one ppm. A cap of other clean non-porous material, such as asphalt or concrete, at a minimum uniform thickness of one centimeter may be used in place of the clean soil cover.

(c) Extract PCBS from the PCB remediation waste with a solvent extraction process according to 40 C.F.R. § 761.61(a) (many additional requirements).

(d) PCB-contaminated soil may be microencapsulated or vitrified on-site. The standard for treatment of PCB remediation waste where PCBS have been microencapsulated or vitrified is less than 50 ppm as measured by the Toxicity Characteristic Leaching Procedure ("TCLP"). Microencapsulated or vitrified waste exceeding the threshold must be disposed at a RCRA Subtitle C landfill or a facility approved by EPA.

59 Fed. Reg. at 62,862.

b. <u>Low-exposure areas</u>

Cleanup of PCB-contaminated soil in low-exposure areas must be accomplished using one or more of the following:

(a) Remove and dispose of all materials with PCB concentrations equal to or greater than 25 ppm.

(b) Remove and dispose of all materials with PCB concentrations equal to or greater than 50 ppm if the disposal area is secured by a fence and a sign containing a PCB Marking Label ("ML").

(c) Remove all materials greater than 100 ppm and place a clean soil cover of an uniform thickness of a minimum 25 centimeters over the site where PCBS remain in excess of 25 ppm. A cap of other impervious material may be used in place of a soil cover.

(d) PCB-contaminated soil may be disposed of onsite using a solvent extraction process provided it meets the requirements of 40 C.F.R. § 761.61 (a)(4)(ii)(4).

> (e) PCB-contaminated soil maybe microencapsulated or vitrified onsite. The level of treatment for waste that have been microencapsulated or vitrified is 50 micrograms per liter TCLP. Wastes exceeding 50 mg/1 must be disposed of offsite at a RCRA landfill or another EPA approved facility.

Id. at 62,863.

PCB remediation waste may be disposed of either at the site that is being remediated or at another site as otherwise allowed under the PCB regulations. Id. at 62,864. The proposed rule, however, does not elaborate on the issue of onsite disposal.

2. Performance-based option

The performance-based option proposed at section 761.61 (b) includes the traditional disposal technologies of high-temperature incineration, high-efficiency boilers, chemical waste landfills, and alternative methodologies approved by the Regional Administrator. These technologies are based on their peformance as currently required in the existing PCB disposal regulations. The proposed amendments to the PCB disposal regulations do not include any changes to the performance-based technology standards.

3. Risk-based option

The risk-based remediation option bases disposal requirements for PCB remediation waste on the "potential risk to health and the environment resulting from residual PCBS in the PCB remediation waste." Id. at 62,798. Performance requirements could include destruction, containment, restriction of access, deed restrictions, and other management controls. EPA's first preference would be to have a permanent remedy that allows for the least restrictive access and land use restrictions. The second preference would be to impose greater protection of sensitive ecosystems such as water resources, croplands, grazing lands, and residential areas than the self-

implementing standards would provide. The third preference would be for destruction or extraction instead of land disposal. The fourth preference would be the use of onsite or existing offsite disposal facilities, as opposed to developing new offsite disposal facilities. Microencapsulation or vitrification would not be preferred technology if it caused unacceptable increases in the volume of waste sent to off-site TSCA disposal facilities.

The proposed rule at section 761.61(c) would authorize the Regional Administrator, based on a site-specific risk assessment, to approve an application for different clean-up and disposal requirements, provided that they would not pose an unreasonable risk of injury to health or the environment. The evaluation of criteria for site-specific variances from the target levels (PCB Spill Policy) would include: (1) risk factors associated with the PCB waste (i.e., volume, concentration, physical state, toxicity, mobility), and (2) risk factors associated with the proposed waste management option (i. e., safety, reliability, possibility of release to surface or groundwater, current and future site use, technical feasibility, permanence of remedy, proposed institutional controls, potential for PCB concentration, and waste minimization). Id. at 62,799.

Potential alternatives include, but are not limited to: thermal destruction such as infrared thermal treatment or circulating bed combustor; physical separation such as thermal treatment (rotary thermal desorber and fluidized bed) and solvent extraction (soil washing and liquified gas); solidification/stabilization such as chemical fixation (encapsulation, in-situ inorganic polymer, and silicates); in-situ vitrification biological treatment; and chemical dechlorination. Such an approach would be harmonized with the Resource Conservation and Recovery Act

("RCRA") and Comprehensive Environmental Response, Compensation. and Liability Act ("CERCLA") clean-up policies.

Applications for the cleanup and disposal of PCB remediation pursuant to a risk-based approach must be made to the Regional Administrator. Approval from the Director, Chemical Management Division must also be obtained if a facility wants to utilize a remediation process not authorized under the self-implementation or technology-based options. Each application must contain, among other things, information that based on technical, environmental, and other considerations, indicates that the proposed cleanup levels, storage, and disposal methods would not pose an unreasonable risk of injury to health and the enviromnent.

B. <u>PCB Non-Remediation Wastes</u>

Under EPA's proposed rule, "PCB non-remediation wastes" include non-liquid bulk material or debris from the demolition on buildings and other manmade structures, insulation and gaskets that have a PCB concentration equal to or greater than 50 ppm, and other materials. Id. at 62,799. The results of demolition processes may be that the source of PCB contamination in these large volume wastes may not easily be identified. Id. at 62,800. Consequently, EPA reiterates in the proposed rule that all wastes that contain 50 ppm PCBS or greater are regulated for disposal.

The proposed disposal options for non-remediation wastes are similar to the disposal options described above for remediation wastes. Under EPA's proposal, non-remediation waste could be disposed pursuant to one of three methods, discussed below.

1. Risk-based disposal

EPA's preference is to allow PCB non-remediation waste to be disposed of in a "well-engineered and operated municipal solid waste landfill with appropriate monitoring to detect releases of PCBS to the environment." Id. at 62,800. Generators would have to obtain approval from the Regional Administrator for the region where the waste would be disposed. In order to obtain approval, the generator would have to demonstrate that based on technical, environmental, or waste-specific considerations, the proposed disposal method would not pose an unreasonable risk of injury to health and the environment. Id. at 62,865.

2. Leachability-based disposal

Under EPA's proposed rule, PCB non-remediation waste could be disposed in a municipal solid waste landfill if the level of PCB in the waste was less than 50 parts per billion TCLP and the landfill was notified in writing 15 days prior to receipt of the material. This self-implementing option would be available only to PCB non-remediation waste itself and not to any material resulting from pretreatment. Id. at 62,800.

3. Performance-based disposal

PCB non-remediation waste would still be permitted to be disposed of pursuant to the traditional options of incineration, chemical waste landfill, or pursuant to another method approved by the Regional Administrator. Id.

III. CONCLUSION

EPA has proposed numerous amendments to its TSCA PCB disposal requirements. Specifically, EPA has proposed various disposal options for "large volume PCB wastes" that take

into consideration the relatively small risk that such wastes pose to human health and the environment. The proposed rule will not be promulgated as a final rule until at least April 30, 1996.

EXHIBIT P

into consideration the relatively small risk that such wastes pose to human health and the environment. The proposed rule will not be promulgated as a final rule until at least April 30, 1996.

EXHIBIT P

EPA Interim Enforcement Policy on Voluntary Environmental Audits

(60 FR 16875, April 3, 1995. This interim policy supersedes, to the extent it is inconsistent with, EPA's 1986 Policy on Environmental Auditing [EDDG App. 501.1051].)

Voluntary Environmental Self-Policing and Self-Disclosure Interim Policy Statement

AGENCY Environmental Protection Agency

ACTION. Interim policy statement and request for comment

SUMMARY The Environmental Protection Agency (EPA) announces and requests comment on an interim policy to provide incentives for regulated entities that conduct voluntary compliance evaluations and also disclose and correct violations. These incentives include eliminating or substantially reducing the gravity component of civil penalties and not referring cases for criminal prosecution where specified conditions are met. The policy also states that EPA will not request voluntary audit reports to trigger enforcement investigations. This interim policy was developed in close consultation with EPA's regional offices and the Department of Justice, and will be applied uniformly by the Agency's enforcement programs.

DATES: This interim policy statement is effective as interim guidance 15 days after publication, in order to give the Agency time to coordinate implementation of the policy throughout EPA Headquarters and the Regions. EPA urges interested parties to comment on this interim policy in writing. Comments must be received by EPA at the address below by 60 days after date *of publication.*

ADDRESSES Submit three copies of comments to the U.S. EPA Air Docket, Mail Code 6102, 401 M Street, SW, Washington, D.C. 20460, attention: docket #C-94-01.

FOR FURTHER INFORMATION CONTACT: Additional documentation relating to the development of this interim policy is contained in the environmental auditing public docket. Documents from the docket may be requested by calling (202) 260-7548, requesting an index to docket #C-94-01, and faxing document requests to (202) 260-4400. Hours of operation are 8 a.m. to 5:30 p.m., Monday through Friday, except legal holidays. Additional contacts are Geoff Garver or Brian Riedel, at (202) 564-4187.

SUPPLEMENTARY INFORMATION

I. BACKGROUND

A. Introduction

One of the Environmental Protection Agency's most important responsibilities is obtaining compliance with federal laws that protect public health and safeguard the environment. That goal can be achieved only with the voluntary cooperation of thousands of businesses and other regulated entities subject to these requirements. Today, EPA is announcing incentives for those who take responsibility for voluntarily evaluating, disclosing and correcting violations. These incentives, developed after nine months of public meetings. and empirical analysis, are set forth in detail below and take effect in 15 days. At the same time, EPA expects to continue a dialogue with stakeholders and consider further refinements to this interim policy. The incentives that EPA is offering fall into three distinct categories.

First, the Agency will completely eliminate gravity-based (or "punitive") penalties for companies or public agencies that voluntarily identify, disclose, and correct violations according to the conditions outlined in this policy. EPA will also reduce punitive penalties by up to 75% for companies that meet most but not all, *of* these conditions. Second, EPA will not recommend to the Department of Justice that criminal charges be brought against a company acting in good faith to identify, disclose, and correct violations, so long as no serious actual harm has occurred. Finally, the Agency will not request voluntary environmental audits to trigger enforcement investigations.

The incentives offered in this policy have been structured above all to protect human health and the environment. For example, even where the conditions for mitigated enforcement are met, EPA will reserve the right to collect full civil penalties for criminal conduct, violations that present an imminent and substantial endangerment or result in serious actual harm, or repeat violations. Sources will not be allowed to gain an economic advantage over their competitors by delaying their investment in compliance. Nor will EPA hesitate to bring a criminal action against individuals responsible for criminal conduct.

EPA is considering additional incentives for voluntary compliance beyond the benefits offered in the policy today. On April 7, 1995, the Agency will announce 12 Environmental Leadership Program (ELP) pilot projects with companies and public agencies to test criteria for auditing and certification of voluntary compliance programs. If successful, standards developed through Environmental Leadership could lead to reduced inspections and public recognition for companies or agencies with state-of-the-art compliance programs. In keeping with the President's announcement on March 16, 1995, EPA also will shortly be announcing additional compliance incentives for small businesses.

The Agency is especially interested in comments relating to whether this interim policy appropriately defines the criteria for determining whether a self-audit, self-evaluation or disclosure is voluntary; whether the interim policy adequately preserves the Agency's authority to assess a gravity penalty component in appropriate caseq and whether, and according to what criteria, the Agency should consider giving credit against the economic benefit component of a penalty for state-of-the-art environmental management systems.

B. Public Process

In May 1994, the Administrator asked the Office of Enforcement and Compliance Assurance to determine whether additional incentives are needed to encourage voluntary disclosure and correction of violations uncovered during environmental audits and self-evaluations.

In developing this interim policy, the Agency held a major two-day public meeting in July 1994 announced in the *Federal Register* on June 20, 1994 (59 FR 31914} published a Restatement of Policies Related to Environmental Auditing in the *Federal Register* on July 28,1994 (59 FR 38455); considered over 80 written comments submitted to the environmental auditing policy docket; held a focus group meeting in San Francisco on. January 19, 1995 with key stakeholders from industry trade groups, State environmental commissions, State attorneys general offices, district attorneys' offices, environmental and public interest groups, and professional environmental auditing groups; and held a public comment session in San Francisco on January 20, 1995.

In addition to considering opinion from stakeholders, EPA conducted its own analysis of relevant facts. For example, the Agency considered EPA and other Federal policies relating to environmental auditing, self-disclosure, and correction, as well as incentives suggested by State and local policies and legislation, and by applications submitted for the ELP pilot program. The Agency also considered relevant surveys on auditing practices and incentives.

C. Purpose

This interim policy is intended to promote environmental compliance by providing greater certainty as to EPA's enforcement response to voluntary self-evaluations, and voluntary disclosure and prompt correction of violations. The policy further provides guidance for States and local authorities in encouraging this behavior among regulated entities.

Federal laws and regulations set minimum standards for protecting human health and achieving environmental protection goals such as clean air and clean water. EPA will continue to uphold these laws through vigorous enforcement actions that appropriately penalize violators. Penalties help ensure a level playing field by ensuring that violators do not obtain an unfair economic advantage over their competitors who made the necessary investment in compliance. Penalties so promote protection of the environment and public health by encouraging adoption of pollution prevention and recycling practices that limit exposure to liability for pollutant discharges and deterring future violations by the violator and others.

At the same time, the Agency recognizes that we cannot achieve maximum compliance without the cooperation of a regulated community willing to act responsibly by detecting, disclosing, and correcting violations. Already, regulated entities have many compelling incentives to implement environmental management/auditing systems, as noted in EPA's 1986 auditing policy [EDDG App. 501.1051]. Indeed, recent surveys show that the vast majority of large companies engage in environmental auditing and/or have environmental management systems in place. Nonetheless, EPA has concluded that the additional incentives in this interim policy will further promote the regulated community's commitment to adopting systems for maximizing compliance.

D. Principles for Voluntary Compliance

The interim policy that EPA is announcing today is based on seven principles

1. Self-policing by regulated entities can play a crucial role in finding, fixing and preventing violations.

2. Violations discovered through self-policing should be disclosed and promptly corrected.

3. Regulated entities that self-police and that voluntarily disclose and self-correct violations in accordance with this policy should be assessed penalties that are consistently and predictably lower than penalties for those who do not.

4. Regulated entities that self-police and voluntarily disclose and self-correct violations in accordance with this policy should also not be recommended for criminal prosecution.

5. Providing predictable incentives for voluntary disclosure and correction of violations identified through self-policing offers a positive alternative to across-the-board privileges and immunities that could be used to shield criminal misconduct, drive up litigation costs and create an atmosphere of distrust between regulators, industry and local communities.

6. EPA should not seek voluntary environmental audit information to trigger an investigation of a civil or criminal violation of environmental laws.

7. To preserve a level playing field, EPA should recover any economic benefit realized from violations of environmental law.

E. Relationship to Emerging Standards

EPA also recognizes the development of and growing reliance on international voluntary environmental management standards in the U.S. and other countries. These standards, if properly crafted and implemented, can provide a powerful tool for organizations to improve their overall compliance with environmental requirements and move beyond compliance through innovative approaches to pollution prevention. In addition to issuing this interim policy, EPA will continue to pursue a dialogue with interested parties and to pilot policy approaches through programs such as the ELP to determine how EPA can make use of and encourage these standards.

IL INTERIM POLICY

A Definitions

For purposes of this interim policy, the following definitions apply

"Environmental auditing" has the definition given to it in EPA's 1986 policy on environmental auditing, i.e. "a systematic, documented, periodic and objective review by regulated entities of facility operations and practices related to meeting environmental requirements."

"Environmental audit report" means all documentation of information relating to an environmental audit, but not including the factual information underlying or testimonial evidence relating to such information.

"Regulated entity" means any entity, including a federal, state, and municipal facility, regulated under the federal environmental laws that EPA administers.

"self-evaluation" means an assessment, not necessarily meeting all the criteria of a full environmental audit, by a regulated entity of its compliance with one or more environmental requirements.

"Voluntary" means not required by statute, regulation, permit, order, or agreement.

B. Conditions

The conditions for reducing civil penalties and not making criminal referrals in accordance with Sections 11.C. and 11.D. of this interim policy are as follows

1. *Voluntmy self-policing.* The regulated entity discovers a violation through a voluntary environmental audit or voluntary self-evaluation appropriate to the size and nature of the regulated entity; and

2. *Voluntary disclosure.* The regulated entity fully and voluntarily discloses the violation in writing to all appropriate federal, state and local agencies as soon as it is discovered (including a reasonable time to determine that a violation exists), and prior to (1) the commencement of a federal, state or local agency inspection, investigation or information request (2) notice of a citizen suit (3) legal complaint by a *third* party; or (4) the regulated entity's knowledge that the discovery of the violation by a regulatory agency or third party was imminent; and

3. *Prompt connection.* The regulated entity corrects the violation either within 60 days of discovering the violation or, if more time is needed, as expeditiously as practicable; and

4. *Remediution of imminent and substuntiul endangerment.* The regulated entity expeditiously remedies any condition that has created or may create an imminent and substantial endangerment to human health or the environment and

5. *Remediation of harm and prevention of repeat violations.* The regulated entity implements appropriate measures to remedy any environmental harm due to the violation and to prevent a recurrence of the violation; and

6. No *lack of appropriate preventive measures.* The violation does not indicate that the regulated entity has failed to take appropriate steps to avoid repeat or recurring violations; and

7. *Cooperation.* The regulated entity cooperates as required by EPA and provides such information as is reasonably necessary and required by EPA to determine applicability of this policy. Cooperation may include providing all requested documents and access to employees and assistance in any further investigations into the violation.

Where appropriate, EPA may require that to satisfy any of these conditions, a regulated entity must enter into a written agreement, administrative consent order or judicial consent decree, particularly where compliance or remedial measures are complex or a lengthy schedule for attaining and maintaining compliance or remediating harm is required.

C. Reduce Civil Penalties for Voluntarily Disclosed and Promptly Corrected Violations

1. Incentive.

Regulated entities will be eligible for the following reductions in civil penalties

a. EPA will eliminate all of the gravity component of the penalty for violations by regulated entities that meet conditions 1 through 7 outlined in Section 11.B., except for violations involving (i) criminal conduct by the regulated entity or any of its employees, or (ii) an imminent and substantial endangerment, or serious actual harm to human health or the environment

b. EPA may mitigate up to 75% of the unadjusted gravity component of the penalty, taking into account any of conditions 1-7 in Section 11.B. that are met, in the following cases:

(i) cases in which most but not all of the conditions in Section II.B. are met or

(ii) cases involving an imminent and substantial endangerment, but not serious actual harm, in which all the conditions in Section II.B. are met: or

(iii) cases involving the disclosure of criminal conduct in which all the conditions in Section II.B. are met.

c. EPA will retain its full discretion to recover any economic benefit gained as a result of noncompliance to preserve a "level playing field" in which violators do not gain a competitive advantage through noncompliance. However, EPA may forgive the entire penalty for violations which meet conditions 1 through 7 outlined in Section II.B. and, in EPA's discretion, do not merit any penalty due to the insignificant amount of any economic benefit.

2. Discussion

a. Providing a clear and significant reduction in" civil penalties for companies that assume responsibility for finding, disclosing and correcting violations will create a strong incentive for regulated entities to prevent or fix violations before EPA expends enforcement resources. The policy states clearly the conditions under which EPA will forgive all or part of the gravity component of a penalty for voluntary disclosure and correction;

b. The policy appropriately preserves the concept of recovering economic benefit except where it is insignificant, as recommended by a broad spectrum of commenters, including industry commentera;

c. Retaining EPA's discretion to collect the gravity component of the penalty in appropriate cases, such as where a violation involves criminal conduct or imminent and substantial endangerment, will help to deter the most egregious environmental violations. At the same time, by preserving flexibility to reduce the gravity element by up to 75% for good faith efforts to disclose and promptly comply even in those cases, the policy will retain an appropriate compliance incentive.

D. Limit Criminal Referrals for Voluntary Disclosure and Correction of Violations

L Incentive

EPA will not recommend to the Department of Justice that criminal charges be brought against a regulated entity where EPA determines that conditions 1-7 in Section II.B. above for reduction of civil penalties are met, and the violation does not

demonstrate or involve (1) a prevalent corporate management philosophy or practice that concealed or condoned environmental violations; (2) high-level corporate cricials' or managers' conscious involvement in or willful blindness to the violation; or (3) serious actual harm to human health or the environment. This policy does not apply to criminal acts of individual managers or employees. Where EPA determines pursuant to this Section that a criminal referral to the Department of Justice is unwarranted, EPA may nonetheless proceed with civil enforcement in accordance with Section II.C. of this policy or other applicable enforcement response and penalty policies.

2. Discussion

The policy will promote candid and thorough self-policing by providing greater certainty as to how EPA will exercise its criminal investigative discretion to encourage voluntary disclosure and prompt correction by regulated entities.

E. Eliminate Routine Requests for Audit Reports in Pre-Enforcement Proceedings

1. Incentive

EPA will not request a voluntary environmental audit report to trigger a civil or criminal investigation. For example, EPA will not request an audit in routine inspections. Once the Agency has reason to believe a violation has been committed, EPA may seek through an investigation or enforcement action any information relevant to identifying violations or determining liability or extent of harm.

2. Discussion

a. This policy makes clear that EPA will not routinely request audit reports. At the same time, the policy in no way limits the right of regulated entities to claim common law privileges (e.g., attorney-client and work product) as appropriate. EPA believes that this clarification, along with the other incentives in this interim policy, should greatly reduce any perception that environmental audits may be used unfairly in environmental enforcement.

b. With respect to federal facilities, although federal facility environmental audit reports may be accessible to the public under the Freedom of Information Act (FOIA) in certain circumstances, EPA cannot utilize FOIA to request information from other federal agencies. Thus, EPA will apply this policy on requests for audit reports to federal (and state and municipal) facilities the same as it does for other regulated entities.

F. Applicability

This interim policy applies to violations under all of the federal environmental statutes that EPA administers and supersedes (unless otherwise noted) any conflicting or inconsistent provisions in the media-specific penalty or enforcement response policies and EPA's 1986 Environmental Auditing Policy Statement. Existing enforcement. policies will continue to apply in conjunction with this interim policy, except where inconsistent with this policy. In addition, where appropriate, EPA's Supplemental Environmental Project Policy may at EPA's discretion be applied in conjunction with this policy.

III. FAVOR THESE INCENTIVES OVER BROAD PRIVILEGES AND IMMUNITIES

This interim policy offers a positive alternative to across-the-board privileges and immunities that could be used to shield criminal misconduct, drhe up litigation costs and create an atmosphere of distrust between regulators, industry and local communities.

A Discussion

1. Penalty immunity provisions for voluntary disclosures of violations can give lawbreakers an economic advantage over their law-abiding competitors. It makes sense to give substantial penalty reductions for those who come forward with their violations and promptly correct them, but to maintain a level playing field, the federal and state governments must be able to recoup the economic benefit of violations.

2. A principal rationale for environmental audit privileges and penalty immunities for voluntary disclosures is to reduce the exposure of regulated entities that conduct self- evaluations and act on *the findings by immediately correcting violutions.* EPA has addressed this' concern with the incentives for disclosure and correction outlined above.

3. Privilege runs counter to efforts to open up environmental decisionmaking and encourage public participation in matters that affect people's homes, workplaces and communities.

4. An environmental audit privilege could be misused to shield bad actors or to frustrate access to crucial factual information.

5. Environmental audit privileges and penalty immunities could encourage increased litigation as opposing lawyers battle over what is privileged or immune from penalties and what is not. Litigation over the scope of the privileges and immunities could burden our already taxed judicial system, drain government and private resources, and in some cases prevent quick action to address environmental emergencies.

6. The Supreme Court has noted, "privileges are not lightly created nor expansively construed for they are in derogation of the search for the truth." *United States v. Nixon,* 418 U.S. 683,710 (1974). 'Moreover, the self-evaluation privilege has regularly and uniformly been rejected by the courts in cases where documents were sought by a governmental agency.

IV. CONSEQUENCES FOR STATES

EPA recognizes that states are important partners in federal enforcement, and that it is desirable to create a climate in which states can be innovative. At the same time, EPA is required to establish a certain minimum consistency in federal enforcement, so that the sanctions a business faces for violating federal law do not depend on where the business is located.

Accordingly, to maintain national consistency

A. EPA will scrutinize enforcement more closely in states with audit privilege and/or penalty immunity laws and may find it necessary to increase federal enforcement where environmental self-evaluation privileges or penalty immunities prevent a state from obtaining

1. information needed to establish criminal liability;

2. facts needed to establish the nature and extent of a violation;

3. appropriate penalties for imminent and substantial endangerment or serious harm to human health or the environment or from recovering economic benefit

4. appropriate sanctions or penalties for criminal conduct and repeat violations or

5. prompt correction of violations, and expeditious remediation of those that involve imminent and substantial endangerment to human health or the environment.

B. EPA will bring to the state's attention any provisions of state audit privilege and/or penalty immunity statutes that raise any of the concerns outlined above, and will work with the state to address those concerns and ensure that federal requirements are satisfied.

V. LIMITATIONS ON APPLICABILITY OF THIS POLICY

This interim policy sets forth internal guidelines which amend EPA's penalty policies in situations involving voluntary self-policing, disclosure and correction. In conjunction with the applicable penalty policy, these guidelines will aid EPA Wrsonnel in proposing appropriate penalties or negotiating settlements in administrative and judicial enforcement actions. The interim policy also serves to structure the Agency's enforcement authority and states the Agency's view as to the proper allocation of its enforcement resources. Deviations from these guidelines, where merited, are authorized so long as the reasons for the deviations are documented.

This interim policy is not final agency act but is intended solely as guidance. It is not intended, nor can it be relied upon, to create any rights enforceable by any party in litigation with the United States. EPA officials may decide to follow the guidance provided in this interim policy or to act at variance with the guidance based on analysis of case-specific facts and circumstances. Application of this policy to the facts of any individual case is at the sole discretion of EPA and is not subject to review by any court. In addition, the policy has no effect on the calculation of any cleanup costs, remedial costs, natural resources damages or emergency response costs associated with a violation. EPA reserves the right to change this interim policy at any time without public notice.

Dated March 30,1995

Steven A. Herman,

Assistant Administrator for Enforcement and Compliance Assurance

EXHIBIT Q

Ov EW 'TA! 'VIRi Yi. UDr ..IVIL!.. !Ah

Issues:	AR[1]	CO[2]	ID[3]	IL[4]	IN[5]	KS[6]	KY[7]	MN[8]	MS[9]	OR[10]	TX[11]	UT[12]	VA[13]	WY[14]
• **Environmental Audit Report** Requires documents comprising environmental audit report to be prepared as a result of an environmental audit and labeled "Environmental Audit Report: Privileged Document."	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	No	No	No	Yes
• **Voluntary Disclosure** Immunity or reduction in penalties for voluntary disclosure.	No	Yes	Yes	No	No	Yes	No	Yes	Yes	No	Yes[15]	No	Yes	Yes
Immunity from criminal charges for voluntary disclosure.	No	Yes	Yes	No	No	Yes	No	Yes	Yes	No	Yes[15]	No	No	No
• **Waiver of Privilege** Expressly.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Not Stated	Yes	Yes	Yes	Yes	Yes	Yes
By implication.	Yes	Not stated	Not stated	Not stated	Yes	Not stated	Yes	Yes	Not Stated	Yes	No	Not stated	Not stated	Yes
By failing to file a petition for *in camera* review or hearing (# of days to file petition after filing or request for the environmental audit report).	Yes (30 days)	Not stated	Not stated	Yes (30 days)	Yes (30 days)	Yes (30 days)	Yes (20 days)	Not Stated	Not Stated	Yes (30 days)	Yes (30 days)	Not stated	Not stated	Yes (20 days)
By introduction of any part of the environmental audit report by party asserting the privilege.	No	Not stated	No	Not stated	Not stated	Not stated	Yes	Not Stated	Not Stated	Not stated	Not Stated	No	Not stated	No
• **Privilege is lost if:** Asserted for fraudulent purpose.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Not Stated	Yes	Yes	Yes	Not stated	Yes[16]	Yes
Material is not subject to the privilege.	Yes	Not stated	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Material shows evidence of non-compliance and efforts to achieve compliance were not promptly initiated and pursued with reasonable diligence.	Yes	Yes	Not stated	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Not stated	Not stated	Yes
In a criminal proceeding, the legal official has a (need, substantial need, compelling need, or compelling circumstances) requiring the otherwise unavailable information.	Not stated	Yes	Not stated	Not stated	Yes	Not stated	Yes	Not Stated	Not Stated	Yes	Not Stated	Not stated	Not stated	Yes

Issues:	AR[1]	CO[2]	ID[3]	IL[4]	IN[5]	KS[6]	KY[7]	MN[8]	MS[9]	OR[10]	TX[11]	UT[12]	VA[13]	WY[14]
• **Burden of Proof** Party asserting the privilege has burden of proving privilege and reasonable diligence toward compliance.	Yes	Yes[17]	Yes[17]	No[18]	Yes	Yes	Yes	Not Stated	Yes[17]	Yes	Yes	Yes[17]	Yes[17]	Yes
Party seeking disclosure has burden of proving fraudulent purpose.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Not Stated	Not Stated	Yes	Yes	Not stated	Yes[19]	Yes
Legal official or party seeking disclosure has burden of proving conditions for disclosure.	Yes	Yes	Not stated	Yes	Yes	Yes	Yes	Not Stated	Yes	Yes	Yes	Yes	Yes	Yes
• Provision for disclosure of only the portions of the environmental audit report relevant to issues in dispute.	Yes	Not stated	Not stated	Yes	Yes	Yes	Yes	Not Stated	Yes	Yes	Yes	Yes	Yes	Yes

(1) Enacted February 17, 1995. Effective 90 days after the 1995 Arkansas legislative session ends. 1995 Ark. Acts 350.
(2) Effective June 1, 1994. Colorado Revised Statutes § 13-25-126.5.
(3) Effective July 1, 1995. 1995 Idaho Session Law 359.
(4) Effective January 24, 1995. Illinois Public Act 88-0690.
(5) Effective July 1, 1994. Indiana Code § 13-10.
(6) Effective July 1, 1995. Kansas S.B. 76 of 1995 Legislative Session.
(7) Effective July 15, 1994. Title XVIII, Kentucky Statute § 224.01-040.
(8) Effective August 1, 1995. Minnesota H.F. 1479 of 1995 Legislative Session. The Minnesota Statute establishes an environmental improvement pilot program that requires a regulated entity to conduct an audit and submit a report to the State. The report is privileged from third-party access as long as the regulated entity is in compliance with its commitments under the program.
(9) Effective July 1, 1995. 1995 Miss. Laws § 49-2-51.
(10) Effective 1994. Or. Rev. Stat. § 468.963.
(11) Effective May 23, 1995. Texas H.B. 2473 of 1995 Legislative Session. The Texas Statute protects environmental or health and safety audits.
(12) Effective March 20, 1995. Section 19-7-101, Utah Code Annotated 1953.
(13) Effective July 1, 1995. Virginia HB 1845ER of 1995 Legislative Session.
(14) Effective July 1, 1995. Wyoming Act No. 26 of 1995 Session.
(15) A facility must give notice of the planned audit to an appropriate regulatory agency in order to receive immunity for any voluntary disclosures pursuant to the audit.
(16) Privilege is lost if asserted in bad faith.
(17) Party asserting privilege has burden of proving a prima facie case.
(18) Party asserting privilege has burden of proving privilege, but adverse party has burden of showing lack of reasonable diligence toward compliance.
(19) Party seeking disclosure has burden of proving document was collected, generated, or developed in bad faith.

EXHIBIT R

Subpart F—Maximum Contaminant Level Goals

§ 141.50 Maximum contaminant level goals for organic contaminants.

(a) MCLGs are zero for the following contaminants:

(1) Benzene
(2) Vinyl chloride
(3) Carbon tetrachloride
(4) 1,2-dichloroethane
(5) Trichloroethylene
(6) Acrylamide
(7) Alachlor
(8) Chlordane
(9) Dibromochloropropane
(10) 1,2-Dichloropropane
(11) Epichlorohydrin
(12) Ethylene dibromide
(13) Heptachlor
(14) Heptachlor epoxide
(15) Pentachlorophenol

(16) Polychlorinated biphenyls (PCBs)
(17) Tetrachloroethylene
(18) Toxaphene
(19) Benzo[a]pyrene
(20) Dichloromethane (methylene chloride)
(21) Di(2-ethylhexyl)phthalate
(22) Hexachlorobenzene
(23) 2,3,7,8-TCDD (Dioxin)

(b) MCLGs for the following contaminants are as indicated:

Contaminant	MCLG in mg/l
(1) 1,1-Dichloroethylene	0.007
(2) 1,1,1-Trichloroethane	0.20
(3) para-Dichlorobenzene	0.075
(4) Aldicarb	0.001
(5) Aldicarb sulfoxide	0.001
(6) Aldicarb sulfone	0.001
(7) Atrazine	0.003
(8) Carbofuran	0.04
(9) o-Dichlorobenzene	0.6
(10) cis-1,2-Dichloroethylene	0.07
(11) trans-1,2-Dichloroethylene	0.1
(12) 2,4-D	0.07
(13) Ethylbenzene	0.7
(14) Lindane	0.0002
(15) Methoxychlor	0.04
(16) Monochlorobenzene	0.1
(17) Styrene	0.1
(18) Toluene	1
(19) 2,4,5-TP	0.05
(20) Xylenes (total)	10
(21) Dalapon	0.2
(22) Di(2-ethylhexyl)adipate	.4
(23) Dinoseb	.007
(24) Diquat	.02
(25) Endothall	.1
(26) Endrin	.002
(27) Glyphosate	.7
(28) Hexachlorocyclopentadiene	.05
(29) Oxamyl (Vydate)	.2
(30) Picloram	.5
(31) Simazine	.004
(32) 1,2,4-Trichlorobenzene	.07
(33) 1,1,2-Trichloroethane	.003

[50 FR 46901, Nov. 13, 1985, as amended at 52 FR 20674, June 2, 1987; 52 FR 25716, July 8, 1987; 56 FR 3592, Jan. 30, 1991; 56 FR 30280, July 1, 1991; 57 FR 31846, July 17, 1992]

§ 141.51 Maximum contaminant level goals for inorganic contaminants.

(a) [Reserved]

(b) MCLGs for the following contaminants are as indicated:

Contaminant	MCLG (mg/l)
Antimony	0.006
Asbestos	7 Million fibers/liter (longer than 10 μm).
Barium	2
Beryllium	.004
Cadmium	0.005
Chromium	0.1
Copper	1.3
Cyanide (as free Cyanide)	.2
Fluoride	4.0
Lead	zero
Mercury	0.002
Nickel	.1
Nitrate	10 (as Nitrogen).
Nitrite	1 (as Nitrogen).
Total Nitrate+Nitrite	10 (as Nitrogen).
Selenium	0.05
Thallium	.0005

[50 FR 47155, Nov. 14, 1985, as amended at 52 FR 20674, June 2, 1987; 56 FR 3593, Jan. 30, 1991; 56 FR 26548, June 7, 1991; 56 FR 30280, July 1, 1991; 57 FR 31846, July 17, 1992]

§ 141.52 Maximum contaminant level goals for microbiological contaminants.

MCLGs for the following contaminants are as indicated:

Contaminant	MCLG
(1) *Giardia lamblia*	zero
(2) Viruses	zero
(3) *Legionella*	zero
(4) Total coliforms (including fecal coliforms and *Escherichia coli*).	zero.

[54 FR 27527, 27566, June 29, 1989; 55 FR 25064, June 19, 1990]

Subpart G—National Revised Primary Drinking Water Regulations: Maximum Contaminant Levels

§ 141.60 Effective dates.

(a) The effective dates for § 141.61 are as follows:

(1) The effective date for paragraphs (a)(1) through (a)(8) of § 141.61 is January 9, 1989.

(2) The effective date for paragraphs (a)(9) through (a)(18) and (c)(1) through (c)(18) of § 141.61 is July 30, 1992.

(3) The effective date for paragraphs (a)(19) through (a)(21), (c)(19) through (c)(25), and (c)(27) through (c)(33) of § 141.61 is January 17, 1994. The effective date of § 141.61(c)(26) is August 17, 1992.

(b) The effective dates for § 141.62 are as follows:

(1) The effective date of paragraph (b)(1) of § 141.62 is October 2, 1987.

(2) The effective date for paragraphs (b)(2) and (b)(4) through (b)(10) of § 141.62 is July 30, 1992.

(3) The effective date for paragraphs (b)(11) through (b)(15) of § 141.62 is January 17, 1994.

[56 FR 3593, Jan. 30, 1991, as amended at 57 FR 31846, July 17, 1992; 59 FR 34324, July 1, 1994]

§ 141.61 Maximum contaminant leve for organic contaminants.

(a) The following maximum contam nant levels for organic contaminan apply to community and non-transier non-community water systems.

CAS No.	Contaminant	MCL (mg/l)
(1) 75-01-4	Vinyl chloride	0.002
(2) 71-43-2	Benzene	0.005
(3) 56-23-5	Carbon tetrachloride	0.005
(4) 107-06-2	1,2-Dichloroethane	0.005
(5) 79-01-6	Trichloroethylene	0.005
(6) 106-46-7	para-Dichlorobenzene	0.075
(7) 75-35-4	1,1-Dichloroethylene	0.007
(8) 71-55-6	1,1,1-Trichloroethane	0.2
(9) 156-59-2	cis-1,2-Dichloroethylene	0.07
(10) 78-87-5	1,2-Dichloropropane	0.005
(11) 100-41-4	Ethylbenzene	0.7
(12) 108-90-7	Monochlorobenzene	0.1
(13) 95-50-1	o-Dichlorobenzene	0.6
(14) 100-42-5	Styrene	0.1
(15) 127-18-4	Tetrachloroethylene	0.005
(16) 108-88-3	Toluene	1
(17) 156-60-5	trans-1,2-Dichloroethylene	0.1
(18) 1330-20-7	Xylenes (total)	10
(19) 75-09-2	Dichloromethane	0.005
(20) 120-82-1	1,2,4-Trichloro- benzene	.07
(21) 79-00-5	1,1,2-Trichloro- ethane	.005

(b) The Administrator, pursuant to section 1412 of the Act, hereby identifies as indicated in the Table below granular activated carbon (GAC), packed tower aeration (PTA), or oxidation (OX) as the best technology trea ment technique, or other means ava able for achieving compliance with t maximum contaminant level for ganic contaminants identified in pa graphs (a) and (c) of this section:

BAT FOR ORGANIC CONTAMINANTS LISTED IN § 141.61 (a) AND (c)

CAS No.	Contaminant	GAC	PTA	O
15972-60-8	Alachlor	X		
116-06-3	Aldicarb	X		
1646-88-4	Aldicarb sulfone	X		
1646-87-3	Aldicarb sulfoxide	X		
1912-24-9	Atrazine	X		
71-43-2	Benzene	X	X	
50-32-8	Benzo[a]pyrene	X		
1563-66-2	Carbofuran	X		
56-23-5	Carbon tetrachloride	X	X	
57-74-9	Chlordane	X		
75-99-0	Dalapon	X		
94-75-7	2,4-D	X		
103-23-1	Di (2-ethylhexyl) adipate	X	X	
117-81-7	Di (2-ethylhexyl) phthalate	X		
96-12-8	Dibromochloropropane (DBCP)	X	X	
95-50-1	o-Dichlorobenzene	X	X	
106-46-7	para-Dichlorobenzene	X	X	
107-06-2	1,2-Dichloroethane	X	X	
75-35-4	1,1-Dichloroethylene	X	X	
156-59-2	cis-1,2-Dichloroethylene	X	X	
156-60-5	trans-1,2-Dichloroethylene	X	X	
75-09-2	Dichloromethane		X	
78-87-5	1,2-Dichloropropane	X	X	
88-85-7	Dinoseb	X		
85-00-7	Diquat	X		
145-73-3	Endothall	X		
72-20-8	Endrin	X		
100-41-4	Ethylbenzene	X	X	
106-93-4	Ethylene Dibromide (EDB)	X	X	

BAT FOR ORGANIC CONTAMINANTS LISTED IN § 141.61 (a) AND (c)—Continued

CAS No.	Contaminant	GAC	PTA	OX
1071-83-6	Glyphosate			X
76-44-8	Heptachlor	X		
1024-57-3	Heptachlor epoxide	X		
118-74-1	Hexachlorobenzene	X		
77-47-3	Hexachlorocyclopentadiene	X	X	
58-89-9	Lindane	X		
72-43-5	Methoxychlor	X		
108-90-7	Monochlorobenzene	X	X	
23135-22-0	Oxamyl (Vydate)	X		
87-86-5	Pentachlorophenol	X		
1918-02-1	Picloram	X		
1336-36-3	Polychlorinated biphenyls (PCB)	X		
122-34-9	Simazine	X		
100-42-5	Styrene	X	X	
1746-01-6	2,3,7,8-TCDD (Dioxin)	X		
127-18-4	Tetrachloroethylene	X	X	
108-88-3	Toluene	X	X	
8001-35-2	Toxaphene	X		
93-72-1	2,4,5-TP (Silvex)	X		
120-82-1	1,2,4-Trichlorobenzene	X	X	
71-55-6	1,1,1-Trichloroethane	X	X	
79-00-5	1,1,2-Trichloroethane	X	X	
79-01-6	Trichloroethylene	X	X	
75-01-4	Vinyl chloride		X	
1330-20-7	Xylene	X	X	

(c) The following maximum contaminant levels for synthetic organic contaminants apply to community water systems and non-transient, non-community water systems:

CAS No.	Contaminant	MCL (mg/l)
(1) 15972-60-8	Alachlor	0.002
(2) 116-06-3	Aldicarb	0.003
(3) 1646-87-3	Aldicarb sulfoxide	0.004
(4) 1646-87-4	Aldicarb sulfone	0.002
(5) 1912-24-9	Atrazine	0.003
(6) 1563-66-2	Carbofuran	0.04
(7) 57-74-9	Chlordane	0.002
(8) 96-12-8	Dibromochloropropane	0.0002
(9) 94-75-7	2,4-D	0.07
(10) 106-93-4	Ethylene dibromide	0.00005
(11) 76-44-8	Heptachlor	0.0004
(12) 1024-57-3	Heptachlor epoxide	0.0002
(13) 58-89-9	Lindane	0.0002
(14) 72-43-5	Methoxychlor	0.04
(15) 1336-36-3	Polychlorinated biphenyls	0.0005
(16) 87-86-5	Pentachlorophenol	0.001
(17) 8001-35-2	Toxaphene	0.003
(18) 93-72-1	2,4,5-TP	0.05
(19) 50-32-8	Benzo[a]pyrene	0.0002
(20) 75-99-0	Dalapon	0.2
(21) 103-23-1	Di(2-ethylhexyl) adipate	0.4
(22) 117-81-7	Di(2-ethylhexyl) phthalate	0.006
(23) 88-85-7	Dinoseb	0.007
(24) 85-00-7	Diquat	0.02
(25) 145-73-3	Endothall	0.1
(26) 72-20-8	Endrin	0.002
(27) 1071-53-6	Glyphosate	0.7
(28) 118-74-1	Hexacholorbenzene	0.001
(29) 77-47-4	Hexachlorocyclopentadiene	0.05
(30) 23135-22-0	Oxamyl (Vydate)	0.2
(31) 1918-02-1	Picloram	0.5
(32) 122-34-9	Simazine	0.004
(33) 1746-01-6	2,3,7,8-TCDD (Dioxin)	3×10 [illegible]

[56 FR 3583, Jan. 30, 1991, as amended at 56 FR 30280, July 1, 1991; 57 FR 31846, July 17, 1992; 59 FR 34324, July 1, 1994]

§ 141.62 Maximum contaminant levels for inorganic contaminants.

(a) [Reserved]

(b) The maximum contaminant levels for inorganic contaminants specified in paragraphs (b)(2)—(6), (b)(10), and (b)(11)—(15) of this section apply to community water systems and non-transient, non-community water systems. The maximum contaminant level specified in paragraph (b)(1) of this section only applies to community water systems. The maximum contaminant levels specified in (b)(7), (b)(8), and (b)(9) of this section apply to community water systems; non-transient, non-community water systems; and transient non-community water systems.

Contaminant	MCL (mg/l)
(1) Fluoride	4.0
(2) Asbestos	7 Million Fibers/liter (longer than 10 μm).
(3) Barium	2
(4) Cadmium	0.005
(5) Chromium	0.1
(6) Mercury	0.002
(7) Nitrate	10 (as Nitrogen)
(8) Nitrite	1 (as Nitrogen)
(9) Total Nitrate and Nitrite	10 (as Nitrogen)
(10) Selenium	0.05
(11) Antimony	0.006
(12) Beryllium	0.004
(13) Cyanide (as free Cyanide).	0.2
(14) Nickel	0.1
(15) Thallium	0.002

(c) The Administrator, pursuant to Section 1412 of the Act, hereby identifies the following as the best technology, treatment technique, or other means available for achieving compliance with the maximum contaminant levels for inorganic contaminants identified in paragraph (b) of this section, except fluoride:

BAT FOR INORGANIC COMPOUNDS LISTED IN SECTION 141.62(B)

Chemical Name	BAT(s)
Antimony	2,7
Asbestos	2,3,8
Barium	5,6,7,9
Beryllium	1,2,5,6,7
Cadmium	2,5,6,7
Chromium	2,5,6[2],7
Cyanide	5,7,10
Mercury	2[1],4,6[1],7[1]
Nickel	5,6,7
Nitrate	5,7,9
Nitrite	5,7
Selenium	1,2[3],6,7,9
Thallium	1,5

[1] BAT only if influent Hg concentrations ≤10μg/1.
[2] BAT for Chromium III only.
[3] BAT for Selenium IV only.

Key to BATS in Table

1=Activated Alumina
2=Coagulation/Filtration
3=Direct and Diatomite Filtration
4=Granular Activated Carbon
5=Ion Exchange
6=Lime Softening
7=Reverse Osmosis
8=Corrosion Control
9=Electrodialysis
10=Chlorine
11=Ultraviolet

[56 FR 3594, Jan. 30, 1991, as amended at 56 FR 30280, July 1, 1991; 57 FR 31847, July 17, 1992; 59 FR 34325, July 1, 1994]

Subpart F—Maximum Contaminant Level Goals

§ 141.50 Maximum contaminant level goals for organic contaminants.

(a) MCLGs are zero for the following contaminants:

(1) Benzene
(2) Vinyl chloride
(3) Carbon tetrachloride
(4) 1,2-dichloroethane
(5) Trichloroethylene
(6) Acrylamide
(7) Alachlor
(8) Chlordane
(9) Dibromochloropropane
(10) 1,2-Dichloropropane
(11) Epichlorohydrin
(12) Ethylene dibromide
(13) Heptachlor
(14) Heptachlor epoxide
(15) Pentachlorophenol

EXHIBIT S

federal register

Friday
July 27, 1990

Part II

Environmental Protection Agency

40 CFR Parts 264, 265, 270, and 271

Corrective Action for Solid Waste Management Units at Hazardous Waste Management Facilities; Proposed Rule

develop and conduct these further Regulatory Impact Analyses.

The new analyses will be conducted in accordance with the existing Agency guidance on Regulatory Impact Analysis and the draft Regulatory Impact Analysis Guidance published in the 1988 Regulatory Program of the United States. The analyses will explicitly examine the costs, health and environmental benefits, and technological limitations for the key regulatory requirements contained in the proposal—especially for the several alternative approaches to ground water remediation outlined in the proposed rule. This analysis will also estimate the aggregate impacts, identified above, for sites eligible for remediation under this rule and for those sites which are listed on the NPL and will, therefore, look to this rule as an ARAR, under the provisions of CERCLA. Upon completion of the revised analyses, EPA will solicit comment on the results of the analyses and the methodology used to derive them. The Agency will then assess these comments, along with comments which will have been received previously on the proposed rule. Through these actions EPA will ensure that the net social benefits (including environmental and health benefits) of the rule proposed today are maximized, taking into account costs, technological limitations, risks, and realistic assessments of both actual and reasonably expected uses of each site. If the revised RIA, together with the comments received, demonstrate that the rule proposed today does not achieve this outcome, the Agency will make appropriate modifications to the final rule, or if necessary, will repropose the rule.

B. Regulatory Flexibility Act

The Regulatory Flexibility Act requires Federal agencies to fully analyze the economic effects of regulations on small entities. The Agency analyzed the economic impacts for the regulatory options that are most similar to today's proposed rule (*i.e.*, "Immediate Cleanup to Health-Based Standards" and "Flexible Cleanup to Health-Based Standards").

The RIA assumes that a small business is significantly impacted if its excess of cash flow over ten percent of its total liabilities is insufficient to meet corrective action costs, or if its net income is insufficient to meet its corrective action costs.

For the alternative analyzed, it was found that small firms encounter more severe impacts from the corrective action requirements than large firms. The options most similar to the proposed rule result in incremental impacts (*i.e.*, relative to the baseline) on approximately 9 to 11 percent of small businesses owning RCRA facilities.

Based on the Agency's guidelines for implementing the Regulatory Feasibility Act, the results of the analysis as summarized above, suggest that the proposed rule does not impose significant impacts on small entities.

C. Paperwork Reduction Act

The information collection requirements in this proposed rule have been submitted for approval to the Office of Management and Budget (OMB) under the Paperwork Reductio[n] Act, 44 U.S.C. 3501 *et seq*. Reporting [and] recordkeeping burden on the public f[or] this collection is estimated at 42,497 hours for the 674 respondents, with a[n] average of 1.151 hours per response. (Burden estimates should include all aspects of the collection effort and m[ay] include time for reviewing instruction[s], searching existing data sources, gathering and maintaining the data needed, completing and reviewing the collection of information, *etc.*)

If you wish to submit comments regarding any aspect of the collection [of] information, including suggestions for reducing the burden, or if you would l[ike] a copy of the information collection request (please reference ICR #1451), contact Rick Westlund, Information Policy Branch, PM-223, U.S. Environmental Protection Agency, 401 [M] Street, SW., Washington, DC 20460 (2[0]2 382-2745); and Tim Hunt, Office of Information and Regulatory Affairs, Office of Management and Budget, Washington, DC 20503. The final rule will respond to any OMB or public comments on the information collectio[n] requirements contained in this propos[al].

List of Subjects in 40 CFR Parts 264, 2[…] 270, and 271

Administrative practice and procedure, Corrective action, Hazardo[us] waste; Insurance, Reporting and recordkeeping requirements.

Dated: July 5, 1990.

William Reilly,

Administrator.

XI. Supplementary Documents

APPENDIX A.—EXAMPLES OF CONCENTRATIONS MEETING CRITERIA FOR ACTION LEVELS

[Section 264.521(a)(2)(i-iv)]

Constituent name	Class	Air(ug/m^3)	Water (mg/L)	Soils (mg/kg)
Acetone	D		4E-00	8E+03
Acetonitrile	D		2E-01	5E+02
Acetophenone	D	2E-01	4E-00	8E+03
Acrylamide	B2	8E-04	8E-06	2E-01
Acrylonitrile	B1	1E-02	6E-05	1E-00
Aldicarb	D		5E-02	1E+02
Aldrin	B2	2E-04	2E-06	4E-02
Allyl alcohol	D		2E-01	4E+02
Aluminum phosphide	D		1E-02	3E+01
Aniline	B2		6E-03	1E+02
Antimony	D		1E-02	3E+01
Arsenic	A	7E-05	(1)	8E+01
Asbestos (2)	A	2E-02		
Barium cyanide	D		2E-00	6E+03
Barium, ionic	D	4E-01	(1)	4E+03
Benzidine	A	2E-05	2E-07	3E-03
Beryllium	B2	4E-04	8E-06	2E-01
Bis(2-ethylhexyl)phthlate	B2		3E-03	5E+01
Bis(chloroethyl)ether	B2	3E-03	3E-05	6E-01
Bromodichloromethane (3)	B2		3E-05	5E-01
Bromoform (3)	D		7E-01	2E+03
Bromomethane	D	3E+01	5E-02	1E+02
Butyl benzyl phthalate	C		7E-00	2E+04

APPENDIX A.—EXAMPLES OF CONCENTRATIONS MEETING CRITERIA FOR ACTION LEVELS—Continued

[Section 264.521(a)(2)(i-iv)]

Constituent name	Class	Air(ug/m^3)	Water (mg/L)	Soils (mg/kg)
Cadmium	B1	6E-04	(1)	4E+01
Calcium cyanide	D		1E-00	3E+03
Carbon disulfide	D		4E-00	8E+03
Carbon tetrachloride	B2	3E-02	3E-04	5E-00
Chloral	D		7E-02	2E+02
Chlordane	B2	3E-03	3E-05	5E-01
Chlorine cyanide	D		2E-00	4E+03
Chlorobenzene	D	2E+01	7E-01	2E+03
Chloroform (3)	B2	4E-02	6E-03	1E+02
2-Chlorophenol	D		2E-01	4E+02
Chromium (VI)	A	9E-05	(1)	4E+02
Copper cyanide	D		2E-01	4E+02
m-Cresol	D		2E-00	4E+03
o-Cresol	D		2E-00	4E+03
p-Cresol	D		2E-00	40+03
Cyanide	D		7E-01	2E+03
Cyanogen	D		1E-00	3E+03
Cyanogen bromide	D		3E-00	7E+03
DDD	B2		1E-04	3E-00
DDE	B2		1E-04	2E-00
DDT	B2	1E-02	1E-04	2E-00
Dibutyl phthalate	D		4E-00	8E+03
Dibutylnitrosamine	B2	6E-04	6E-06	1E-01
3,3'-Dichlorobenzidine	B2		8E-05	2E-00
Dichlorodifluoromethane	D	2E+02	7E-00	2E+04
1,2-Dichloroethane	B2	4E-02	(1)	8E-00
1,1-Dichloroethylene	C	3E-02	(1)	1E+01
2,4-Dichlorophenol	D		1E-01	2E+02
2,4-Dichlorophenoxyacetic acid	D		4E-01	8E+02
1,3-Dichloropropene	B2		1E-02	2E+01
Dieldrin	B2	2E-04	2E-06	4E-02
Diethyl phthalate	D		3E+01	6E+04
Diethylnitrosamine	B2	2E-05	2E-07	5E-03
Dimethoate	D		7E-01	2E+03
Dimethylnitrosamine	B2	7E-05	7E-07	1E-02
m-Dinitrobenzene	D		4E-03	8E-00
2,4-Dinitrophenol	D		7E-02	2E+02
2,3-Dinitrotoluene (and 2,6-, mixture)	B2		5E-05	1E-00
1,4-Dioxane	B2		3E-03	6E+01
Diphenylamine	D		9E-01	2E+03
1,2-Diphenylhydrazine	B2	4E-03	4E-05	9E-01
Disulfoton	D		1E-03	3E-00
Endosulfan	D		2E-03	4E-00
Endothall	D		7E-01	2E+03
Endrin	D		(1)	2E+01
Epichlorohydrin	B2	8E-01	4E-03	7E+01
Ethylbenzene	D		4E-00	8E+03
Ethylene dibromide	B2	5E-03	4E-07	8E-03
Formaldehyde	B1	8E-02		
Formic acid	D		7E+01	2E+05
Glycidyaldehyde	D		1E-02	3E+01
Heptachlor	B2	8E-04	8E-06	2E-01
Heptachlor epoxide	B2	4E-04	4E-06	8E-02
Hexachlordibenzo-p-dioxin	B2	6E-07	1E-08	1E-04
Hexachlorobutadiene	C	4E-01	4E-03	9E+01
alpha-Hexachlorocyclohexane	B2	6E-04	6E-06	1E-01
beta-Hexachlorocyclohexane	C	2E-02	2E-04	4E-00
Hexachlorocyclopentadiene	D	7E-02	2E-01	6E+02
Hexachloroethane	C	3E-00	3E-02	8E+01
Hexachlorophene	D		1E-02	2E+01
Hydrazine	B2	2E-04	1E-05	2E-01
Hydrogen cyanide	D		7E-01	2E+03
Hydrogen sulfite	D		1E-01	2E+02
Isobutyl alcohol	D		1E+01	2E+04
Isophorone	C		9E-02	2E+03
Lead	B2		(1)	
Lindane (gamma-hexachlorocyclohexane)	B2/C		(1)	5E-01
m-Phenylenediamine	D		2E-01	5E+02
Maleic anhydride	D		4E-00	8E+03
Maleic hydrazide	D		2E+01	4E+04
Mercury (inorganic)	D		(1)	2E+01
Methacrylonitrile	D	7E-01	4E-03	8E-00
Methomyl	D		9E-01	2E+03
Methyl chlorocarbonate	D			
Methyl ethyl ketone	D	3E+02	2E-00	4E+03
Methyl isobutyl ketone	D	7E+01	2E-00	4E+03
Methyl parathion	D		9E-03	2E+01

APPENDIX A.—EXAMPLES OF CONCENTRATIONS MEETING CRITERIA FOR ACTION LEVELS—Continued

[Section 264.521(a)(2)(i-iv)]

Constituent name	Class	Air(ug/m^3)	Water (mg/L)	Soils k
Methylene chloride	B	3E−01	5E−03	9E+
n-Nitroso-di-n-butylamine	B2	6E−04	6E−06	1E−
n-Nitroso-n-ethylurea	B			
n-Nitroso-n-methylethylamine	B2		2E−06	3E−
n-Nitrosodi-n-propylamine	B2		5E−06	1E−
n-Nitrosodiethanolamine	B2		1E−05	3E−
n-Nitrosodiphenylamine	B2		7E−03	1E+0
n-Nitrosopyrrolidine	B2	2E−03	2E−05	3E−0
Nickel	D		7E−01	2E+0
Nickel refinery dust	A	4E−03		
Nitric oxide	D		4E−00	8E+0
Nitrobenzene	D	2E−00	2E−02	4E+0
Nitrogen dioxide	D		4E+01	8E+0
Osmium tetroxide	D		4E−04	8E−0
Parathion	C		2E−01	5E+0
Pentachlorobenzene	D		3E−02	6E+0
Pentachloronitrobenzene	C	1E−01	1E−01	2E+0
Pentachlorophenol	D		1E−00	2E+0
Phenol	D		2E+01	5E+0
Phenyl mercuric acetate	D		3E−03	6E−0
Phosphine	D		1E−02	2E+0
Phthalic anhydride	D		7E+01	2E+0
Polychlorinated biphenyls	B2		5E−06	9E−0
Potassium cyanide	D		2E−00	4E+0
Potassium silver cyanide	D		7E−00	2E+0
Pronamide	D		3E−00	6E+0
Pyridine	D		4E−02	8E+0
Selenous acid	D		1E−01	2E+0
Selenourea	D		2E−01	4E+0
Silver	D		(1)	2E+0
Silver cyanide	D		4E−00	8E+0
Sodium cyanide	D		1E−00	3E+0
Strychnine	D		1E−02	2E+0
Styrene	C		7E−00	2E+0
1,1,1,2-Tetrachlorethane	C	1E−00	1E−02	3E+0
1,2,4,5-Tetrachlorobenzene	D		1E−02	2E+0
1,1,1,2-Tetrachloroethane	C	1E−00	1E−02	3E+0
1,1,2,2-Tetrachloroethane	C	2E−01	2E−03	4E+0
Tetrachloroethylene	B2	1E−00	7E−04	1E+0
2,3,4,6-Tetrachlorophenol	D		1E−00	2E+0
Tetraethyl lead	D		4E−06	8E−0
Tetraethyldithiopyrophosphate	D		2E−02	4E+01
Thallic oxide	D		2E−03	6E−0
Thallium acetate	D		3E−03	7E−0
Thallium carbonate	D		3E−03	6E−0
Thallium chloride	D		3E−03	6E−00
Thallium nitrate	D		3E−03	7E−00
Thallium sulfate	D		3E−03	8E−00
Thiosemicarbazide	D		2E−01	5E+02
Thiram	D		2E−01	4E+02
Toluene	D	7E+03	1E+01	2E+04
Toxaphene	B2	3E−03	(1)	6E−01
1,2,4-Trichlorobenzene	D	1E+01	7E−01	2E+03
1,1,1-Trichloroethane	D	1E+03	3E−00	7E+03
1,1,2-Trichloroethane	C	6E−01	6E−03	1E+02
Trichloroethylene	B2		(1)	6E+01
Trichloromonofluoromethane	D	7E+02	1E+01	2E+04
2,4,5-Trichlorophenol	D		4E−00	8E+03
2,4,6-Trichlorophenol	B2	2E−01	2E−03	4E+01
2,4,5-Trichlorophenoxyacetic acid	D		(1)	8E+02
1,2,3-Trichloropropane	D		2E−01	5E+02
Vanadium pentoxide	D		3E−01	7E+02
Xylenes	D	1E+03	7E+01	2E+05
Zinc cyanide	D		2E−00	4E+03
Zinc phosphide	D		1E−02	2E+01

(1) MCL available; see appendix B.

(2) The air action level for asbestos is measured in units of fibers/milliliters.

(3) There is an MCL for total trihalomethanes, which includes four constituents: bromoform, bromodichloromethane, chloroform, and dibromochlorometh
Concentration derived using exposure assumptions in appendix D and reference doses for systemic toxicants and verified risk-specific doses at 10−6 for Class A
B carcinogens and 10−5 for Class C carcinogens (see section VI.F.2.6 for further discussion).

A, B and C represents class A, B and C carcinogens, respectively; D represents a systemic toxicant.

APPENDIX B—MAXIMUM CONTAMINANT LEVELS

Constituent	MCL (ppm)
Arsenic	0.05
Barium	1
Benzene	0.005
Cadmium	0.010
Carbon tetrachloride	0.005
Chromium VI	0.05
p-Dichlorobenzene	0.075
1,2-Dichloroethane	0.005
1,1-Dichloroethylene	0.007
2,4-D	0.1
2,4,5-TP Silvex	0.01
Endrin	0.0002
Fluoride	4.0
Lead	0.05
Lindane	0.004
Mercury	0.002
Methoxychlor	0.1
Nitrate	10
Selenium	0.01
Silver	0.05
Toxaphene	0.005
1,1,1-Trichloroethane	0.2
Trichloroethylene	0.005
Trihalomethanes, total [1]	0.10
Vinyl chloride	0.002

[1] Including chloroform, bromoform, bromodichloromethane, and dibromochloromethane.

APPENDIX C—RANGE OF CONCENTRATIONS FOR ESTABLISHING MEDIA PROTECTION STANDARDS FOR CARCINOGENS

Constituent name	Class	MaxAir (ug/m 3)	MinAir (ug/m 3)	Max-Water (mg/L)	MinWater (mg/L)	MaxSoil (mg/kg)	MinSoil (mg/kg)
Acetone	D						
Acetonitrile	D						
Acetophenone	D						
Acrylamide	B2	8E-02	8E-04	8E-04	8E-06	2E+01	2E-01
Acrylonitrile	B1	1E-00	1E-02	6E-03	6E-05	1E+02	1E-00
Aldicarb	D						
Aldrin	B2	2E-02	2E-04	2E-04	2E-06	4E-00	4E-02
Allyl alcohol	D						
Aluminum phosphide	D						
Aniline	B2			6E-01	6E-03	1E+04	1E+02
Antimony	D						
Arsenic	A	7E-03	7E-05				
Asbestos (2)	A	2E-00	2E-02				
Barium cyanide	D						
Barium, ionic	D						
Benzidine	A	2E-03	2E-05	2E-05	2E-07	3E-01	3E-03
Beryllium	B2	4E-02	4E-04	8E-04	8E-06	2E+01	2E-01
Bis(2-ethylhexyl)phthlate	B2			3E-01	3E-03	5E+03	5E+01
Bis(chloroethyl)ether	B2	3E-01	3E-03	3E-03	3E-05	6E+01	6E-01
Bromodichloromethane	B2			3E-03	3E-05	5E+01	5E-01
Bromoform	D						
Bromomethane	D						
Butyl benzyl phthalate	C						
Cadmium	B1	6E-02	6E-04				
Calcium cyanide	D						
Carbon disulfide	D						
Carbon tetrachloride	B2	3E-00	3E-02	3E-02	3E-04	5E+02	5E-00
Chloral	D						
Chlordane	B2	3E-01	3E-03	3E-03	3E-05	5E+01	5E-01
Chlorine cyanide	D						
Chlorobenzene	D						
Chloroform	B2	4E-00	4E-02	6E-01	6E-03	1E+04	1E+02
2-Chlorophenol	D						
Chromium (VI)	A	9E-03	9E-05				
Copper cyanide	D						
m-Cresol	D						
o-Cresol	D						
p-Cresol	D						
Cyanide	D						
Cyanogen	D						
Cyanogen bromide	D						
DDD	B2			1E-02	1E-04	3E+02	3E-00
DDE	B2			1E-02	1E-04	2E+02	2E-00
DDT	B2	1E-00	1E-02	1E-02	1E-04	2E+02	2E-00
Dibutyl phthalate	D						
Dibutylnitrosamine	B2	6E-02	6E-04	6E-04	6E-06	1E+01	1E-01
3,3'-Dichlorobenzidine	B2			8E-03	8E-05	2E+02	2E-00
Dichlorodifluoromethane	D						
1,2-Dichloroethane	B2	4E-00	4E-02	4E-02	4E-04	8E+02	8E-00
1,1-Dichlorothylene	C	3E-01	3E-03	6E-03	6E-05	1E+02	1E-00
2,4-Dichlorophenol	D						
2,4-Dichlorophenoxyacetic acid	D						
1,3-Dichloropropene	B2						
Dieldrin	B2	2E-02	2E-04	2E-04	2E-06	4E-00	4E-02
Diethyl phthalate	D						

APPENDIX C—RANGE OF CONCENTRATIONS FOR ESTABLISHING MEDIA PROTECTION STANDARDS FOR CARCINOGENS—Continued

Constituent name	Class	MaxAir (ug/m 3)	MinAir (ug/m 3)	Max-Water (mg/L)	MinWater (mg/L)	MaxSoil (mg/kg)	MinSoil (mg/kg)
Diethylnitrosamine	B2	2E-03	2E-05	2E-05	2E-07	5E-01	5E-
Dimethoate	D						
Dimethylnitrosamine	B2	7E-03	7E-05	7E-05	7E-07	1E-00	1E-0
m-Dinitrobenzene	D						
2,4-Dinitrophenol	D						
2,3-Dinitrotoluene (and 2,6-, mixture)	B2			5E-03	5E-05	1E+02	1E-0
1,4-Dioxane	B2			3E-01	3E-03	6E+03	6E+0
Diphenylamine	D						
1,2-Diphenylhydrazine	B2	4E-01	4E-03	4E-03	4E-05	9E+01	9E-0
Disulfoton	D						
Endosulfan	D						
Endothall	D						
Endrin	D						
Epichlorohydrin	B2	8E+01	8E-01	4E-01	4E-03	7E+03	7E+0
Ethylbenzene	D						
Ethylene dibromide	B2	5E-01	5E-03	4E-05	4E-07	8E-01	8E-0
Formaldehyde	B1	8E-00	8E-02				
Formic acid	D						
Glycidyaldehyde	D						
Heptachlor	B2	8E-02	8E-04	8E-04	8E-06	2E+01	[illegible]
Heptachlor epoxide	B2	4E-02	4E-04	4E-04	4E-06	8E-00	8E-0
Hexachlordibenzo-p-dioxin	B2	6E-05	6E-07	6E-07	1E-08	1E-02	1E-0
Hexachlorobutadiene	C	4E-00	4E-02	4E-02	4E-04	9E+02	9E-0
alpha-Hexachlorocyclohexane	B2	6E-02	6E-04	6E-04	6E+06	1E-01	1E-0
beta-Hexachlorocyclohexane	C	2E-01	2E-03	2E-03	2E-05	4E+01	4E-0
Hexachlorocyclopentadiene	D						
Hexachloroethane	C	3E+01	3E-01	3E-01	3E-03	5E+03	5E+0
Hexachlorophene	D						
Hydrazine	B2	2E-02	2E-04	1E-03	1E-05	2E+01	2E-0
Hydrogen cyanide	D						
Hydrogen sulfite	D						
Isobutyl alcohol	D						
Isophorone	C			9E-01	9E-03	2E+04	2E+0
Lead	B2						
Lindane (gamma-hexachlorocyclohexane)	B2/C			3E-03	3E-05	5E+01	5E-0
m-Phenylenediamine	D						
Maleic anhydride	D						
Maleic hydrazide	D						
Mercury (inorganic)	D						
Methacrylonitrile	D						
Methomyl	D						
Methyl chlorocarbonate	D						
Methyl ethyl ketone	D						
Methyl isobutyl ketone	D						
Methyl parathion	D						
Methylene chloride	B	3E+01	3E-01	5E-01	5E-03	9E+03	9E+01
n-Nitroso-di-n-butylamine	B2	6E-02	6E-04	6E-04	6E+06	1E-01	1E-01
n-Nitroso-n-ethylurea	B						
n-Nitroso-n-methylethylamine	B2			2E-04	2E-06	3E-00	3E-02
n-Nitrosodi-n-propylamine	B2			5E-04	5E-06	1E+01	1E-01
n-Nitrosodiethanolamine	B2			1E-03	1E-05	3E+01	3E-01
n-Nitrosodiphenylamine	B2			7E-01	7E-03	1E+04	1E+02
n-Nitrosopyrrolidine	B2	2E-01	2E-03	2E-03	2E-05	3E+01	3E-01
Nickel	D						
Nickel refinery dust	A	4E-01	4E-03				
Nitric oxide	D						
Nitrobenzene	D						
Nitrogen dioxide	D						
Osmium tetroxide	D						
Parathion	C						
Pentachlorobenzene	D						
Pentachloronitrobenzene	C	1E-00	1E-02				
Pentachlorophenol	D						
Phenol	D						
Phenyl mercuric acetate	D						
Phosphine	D						
Phthalic anhydride	D						
Polychlorinated biphenyls	B2			5E-04	5E-06	9E-00	9E-02
Potassium cyanide	D						
Potassium silver cyanide	D						
Pronamide	D						
Pyridine	D						
Selenious acid	D						
Selenourea	D						
Silver	D						
Silver cyanide	D						
Sodium cyanide	D						
Strychnine	D						

APPENDIX C—RANGE OF CONCENTRATIONS FOR ESTABLISHING MEDIA PROTECTION STANDARDS FOR CARCINOGENS—Continued

Constituent name	Class	MaxAir (ug/m 3)	MinAir (ug/m 3)	Max-Water (mg/L)	MinWater (mg/L)	MaxSoil (mg/kg)	MinSoil (mg/kg)
Styrene	C						
1,1,1,2-Tetrachlorethane	C	1E+01	1E-01	1E-01	3E+03	3E+03	3E+01
1,2,4,5-Tetrachlorobenzene	D						
1,1,1,2-Tetrachloroethane	C	1E+01	1E-01	1E-01	1E-03	3E+03	3E+01
1,1,2,2-Tetrachloroethane	C	2E-00	2E-02	2E-02	2E-04	4E+02	4E-00
Tetrachloroethylene	B2	1E+02	1E-00	7E-02	7E-04	1E+03	1E+01
2,3,4,6-Tetrachlorophenol	D						
Tetraethyl lead	D						
Tetraethyldithiopyrophosphate	D						
Thallic oxide	D						
Thallium acetate	D						
Thallium carbonate	D						
Thallium chloride	D						
Thallium nitrate	D						
Thallium sulfate	D						
Thiosemicarbazide	D						
Thiram	D						
Toluene	D						
Toxaphene	B2	3E-01	3E-03	3E-03	3E-05	6E+01	6E-01
1,2,4-Trichlorobenzene	D						
1,1,1-Trichloroethane	D						
1,1,2-Trichloroethane	C	6E-00	6E-02	6E-02	6E-04	1E+03	1E+01
Trichloroethylene	B2			3E-01	3E-03	6E+03	6E+01
Trichloromonofluoromethane	D						
2,4,5-Trichlorophenol	D						
2,4,6-Trichlorophenol	B2	2E+01	2E-01	2E-01	2E-03	4E+03	4E+01
2,4,5-Trichlorophenoxyacetic acid	D						
1,2,3-Trichloropropane	D						
Vanadium pentoxide	D						
Xylenes	D						
Zinc cyanide	D						
Zinc phosphide	D						

Appendix D: Recommended Exposure Assumptions for Use in Deriving Action Levels

(Sections 264.521 (a)(2); (b); (c)(3); and (d))

1. In deriving action levels for hazardous constituents in ground-water, assume a water intake of 2 liters/day for 70 kg adult/70 year lifetime exposure period.

2. In deriving action levels for hazardous constituents in air, assume air intake of 20 cubic meters/day for 70 kg adult/70 year lifetime exposure period.

3. In deriving action levels for hazardous constituents in soil, which are known or suspected to be carcinogens, assume soil intake of 0.1 gram/day for 70 kg adult/70 year lifetime exposure period.

4. In deriving action levels for hazardous constituents in soil, other than those which are known or suspected to be carcinogens, assume soil intake of 0.2 gram/day for 16 kg child/5 year exposure period (age 1–6).*

5. In deriving action levels for hazardous constituents in surface water designated by the State for use as a drinking water source, assume a water intake of 2 liters/day for 70 kg adult/70 year lifetime exposure period, unless intake of aquatic organisms is also of concern.

*Not to be averaged over a 70-year lifetime.

Appendix E: Examples of Calculations of Action Levels

I. Governing Equations for Calculating Action Levels

A. *Systemic Toxicants*

$C_m = [RfD*W]/[I*A]$

where:

C_m = action level in medium (units are medium-dependent);

RfD = reference dose (mg/kg/day);

W = body weight (kg);

I = intake assumption (units are medium-dependent); and

A = absorption factor [1] (dimensionless).

B. *Carcinogenic Constituents*

$C_m = [R*W*LT]/[CSF*I*A*ED]$

where:

C_m = action level in medium (units are medium-dependent);

R = assumed risk level (dimensionless) (10^{-6} for class A & B; 10^{-5} for class C carcinogens);

W = body weight (kg);

LT = assumed lifetime (years);

CSF = carcinogenic slope factor $(mg/kg/day)^{-1}$;

I = intake assumption (units are medium-dependent);

A = absorption factor (dimensionless); and

ED = exposure duration (years).

[1] Assumed to be 1 for this appendix, based upon the assumption that the human absorption rate will be the same as the rate in the study upon which the RfD or CPF was developed.

II. Example Calculations for Hazardous Constituents in Air

A. *Systemic Toxicants*

Example calculation for 2,4-dinitrophenol:

$C_a = [0.002 (mg/kg/d)*1000 (\mu g/mg)*70(kg)]/[20 (m^3/d)*1] = 7.0\ \mu g/m^3$

where:

C_a = action level in air ($\mu g/m^3$)

RfD = 0.002 mg/kg/day

W = 70 kg adult

I = 20 m^3/day

A = 1

B. *Carcinogenic Constituents*

Example calculation for 1,1,2,2-tetrachloroethane:

$C_a = [10^{-5}*1000 (\mu g/mg)*70 (yrs)*70 (kg)]/[0.20 (mg/kg/day)^{-1}*20 (m^3/day)*1*70 (yrs)] = .175\ \mu g/m$

where:

C_a = action level in air ($\mu g/m^3$)

R = 10^{-5} (1,1,2,2-Tetrachloroethane is a Class C carcinogen)

W = 70 kg adult

LT = 70 year lifetime

CSF = 0.20 $(mg/kg/day)^{-1}$

I = 20 m^3/day

A = 1

ED = 70 year exposure duration

III. Sample Calculation for Hazardous Constituents in Water

A. *Systemic Toxicants*

Sample calculation for toluene:

$C_w = [0.30 (mg/kg/day)*70 (kg)]/[2 (L/day)*1] = 10.5\ mg/L$

where:

C_w = action level in water (mg/L)

RfD=0.30 mg/kg/day for toluene
W=70 kg adult
I=2 L/day
A=1

B. *Carcinogenic Constituents*

Sample calculation for 1,1,2,2-tetrachloroethane:

C_w=[10^{-6}*70 (kg)*70 (yr)]/[0.20 (mg/kg/day)$^{-1}$*2 (L/day)*1*70 (yr)]=1.75E-03 mg/L

where:
C_w=action level in water (mg/L)
R=10^{-6} (1,1,2,2-Tetrachloroethane is a Class C carcinogen)
W=70 kg adult
LT=70 year lifetime
CSF=0.20 (mg/kg/day)$^{-1}$
I=2 L/day
A=1
ED=70 year exposure duration

IV. Sample Calculations for Hazardous Constituents in Soils

A. *Systemic Toxicants*

Example calculations for toluene:

C_s=[0.30 (mg/kg/day)*16 (kg)]/[0.2 (g/day)*1*0.001 (kg/g)]=24,000 mg/kg

where:
C_s=action level in soil (mg/kg)
RfD=0.30 mg/kg/day for toluene
W=16 kg (5 year old child)
I=0.2 g/day
A=1

B. *Carcinogenic Constituents*

Sample calculation for 1,1,2,2-tetrachloroethane:

C_s=[10^{-6}*70 (kg)*70 (yrs)]/[0.20 (mg/kg/day)$^{-1}$*0.1 (g/day)*0.001 (kg/g)*1*70 (yrs)]=35.0 mg/kg

where:
C_s=action level in soil (mg/kg)
R=10^{-6} (1,1,2,2-tetrachloroethane is a Class C carcinogen)
W=70 kg adult
LT=70 year lifetime
CSF=0.20 (mg/kg/day)$^{-1}$
I=0.1 g/day
A=1
ED=70 year exposure duration

Appendix F—List of Constituents Showing Action Level Source Data

Constituent name	Class	Noncarcinogenic effects		Carcinogenic effects	
		Oral RFD (mg/kg/d)	Inhalation RFD (mg/kg/d)	Oral slope factor (mg/kg/d)-1	Inhalation slope factor (mg/kg/d)
Acetone	D	1.0E−01			
Acetonitrile	D	6.0E−03			
Acetophenone	D	1.0E−01	5.0E−05		
Acrylamide	B2	2.0E−04		4.5E−00	4.5E−00
Acrylonitrile	B1			5.4E−01	2.4E−01
Aldicarb	D	1.3E−03			
Aldrin	B2	3.0E−05		1.7E+01	1.7E+01
Allyl alcohol	D	5.0E−03			
Aluminum phosphide	D	4.0E−04			
Aniline	B2			5.7E−03	
Antimony	D	4.0E−04			
Arsenic	A	1.0E−03			5.0E+01
Asbestos (2)	A				2.3E−01
Barium cyanide	D	7.0E−02			
Barium, ionic	D	5.0E−02	1.0E−04		
Benzidine	A	3.0E−03		2.3E+02	2.3E+02
Beryllium	B2	5.0E−03		4.3E−00	8.4E−00
Bis(2-ethylhexyl)phthalate	B2	2.0E−02		1.4E−02	
Bis(chloroethyl)ether	B2			1.1E−00	1.1E−00
Bromodichloromethane	B2	2.0E−02		1.3E−00	
Bromoform	D	2.0E−02			
Bromomethane	D	1.4E−03	8.0E−03		
Butyl benzyl phthalate	C	2.0E−01			
Cadmium	B1	5.0E−04			6.1E−00
Calcium cyanide	D	4.0E−02			
Carbon disulfide	D	1.0E−01			
Carbon tetrachloride	B2	7.0E−04		1.3E−01	1.3E−01
Chloral	D	2.0E−03			
Chlordane	B2	6.0E−05		1.3E−00	1.3E−00
Chlorine cyanide	D	5.0E−02			
Chlorobenzene	D	2.0E−02	5.0E−03		
Chloroform	B2	1.0E−02		6.1E−03	8.1E−02
2-Chlorophenol	D	5.0E−03			
Chromium (VI)	A	5.0E−03			4.1E+01
Copper cyanide	D	5.0E−03			
m-Cresol	D	5.0E−02			
o-Cresol	D	5.0E−02			
p-Cresol	D	5.0E−02			
Cyanide	D	2.0E−02			
Cyanogen	D	4.0E−02			
Cyanogen bromide	D	9.0E−02			
DDD	B2			2.4E−01	
DDE	B2			3.4E−01	
DDT	B2	5.0E−04		3.4E−01	3.4E−01
Dibutyl phthalate	D	1.0E−01			
Dibutylnitrosamine	B2			5.4E−00	5.4E−00
3,3'-Dichlorobenzidine	B2			4.5E−01	
Dichlorodifluoromethane	D	2.0E−01	5.0E−02		
1,2-Dichloroethane	B2			9.1E−02	9.1E−02
1,1-Dichloroethylene	C	9.0E−03		6.0E−01	1.2E−00
2,4-Dichlorophenol	D	3.0E−03			
2,4-Dichlorophenoxyacetic acid	D	1.0E−02			
1,3-Dichloropropene	B2	3.0E−04			
Dieldrin	B2	5.0E−05		1.6E+01	1.6E+01
Diethyl phthalate	D	8.0E−01			
Diethylnitrosamine	B2			1.5E+02	1.5E+02

APPENDIX F—LIST OF CONSTITUENTS SHOWING ACTION LEVEL SOURCE DATA—Continued

Constituent name	Class	Noncarcinogenic effects: Oral RFD (mg/kg/d)	Noncarcinogenic effects: Inhalation RFD (mg/kg/d)	Carcinogenic effects: Oral slope factor (mg/kg/d)-1	Carcinogenic effects: Inhalation slope factor (mg/kg/d) [1]
Dimethoate	D	2.0E−02			
Dimethylnitrosamine	B2			5.1E+01	5.1E+01
m-Dinitrobenzene	D	1.0E−04			
2,4-Dinitrophenol	D	2.0E−03			
2,3-Dinitrotoluene (and 2,6-, mixture)	B2			6.8E−01	
1,4-Dioxane	B2			1.1E−02	
Diphenylamine	D	2.5E−02			
1,2-Diphenylhydrazine	B2			8.0E−01	8.0E−01
Disulfoton	D	4.0E−05			
Endosulfan	D	5.0E−05			
Endothall	D	2.0E−02			
Endrin	D	3.0E−04			
Epichlorohydrin	B2	2.0E−03		9.9E−03	4.2E−03
Ethylbenzene	D	1.0E−01			
Ethylene dibromide	B2			8.5E+01	7.6E−01
Formaldehyde	B1				4.5E−02
Formic acid	D	2.0E−00			
Glycidyaldehyde	D	4.0E−04			
Heptachlor	B2	5.0E−04		4.5E−00	4.5E−00
Heptachlor epoxide	B2	1.3E−05		9.1E−00	9.1E−00
Hexachlordibenzo-p-dioxin	B2			6.2E+03	6.2E+03
Hexachlorobutadiene	C	2.0E−03		7.8E−02	7.8E−02
alpha-Hexachlorocyclohexane	B2			6.3E−00	6.3E−00
beta-Hexachlorocyclohexane	C			1.8E−00	1.8E−00
Hexachlorocyclopentadiene	D	7.0E−03	2.0E−05		
Hexachloroethane	C	1.0E−03		1.4E−02	1.4E−02
Hexachlorophene	D	3.0E−04			
Hydrazine	B2			3.0E−00	1.7E+01
Hydrogen cyanide	D	2.0E−02			
Hydrogen sulfide	D	3.0E−03			
Isobutyl alcohol	D	3.0E−01			
Isophorone	C	2.0E−01		4.1E−03	
Lead	B2				
Lindane (gamma-hexachlorocyclohexane)	B2/C	3.0E−04		1.3E−00	
m-Phenylenediamine	D	6.0E−03			
Maleic anhydride	D	1.0E−01			
Maleic hydrazide	D	5.0E−01			
Mercury (inorganic)	D	3.0E−04			
Methacrylonitrile	D	1.0E−04	2.0E−04		
Methomyl	D	2.5E−02			
Methyl chlorocarbonate	D				
Methyl ethyl ketone	D	5.0E−02	9.0E−02		
Methyl isobutyl ketone	D	5.0E−02	2.0E−02		
Methyl parathion	D	2.5E−04			
Methylene chloride	B	6.0E−02		7.5E−03	1.4E−02
n-Nitroso-di-n-butylamine	B2			5.4E−00	5.4E−00
n-Nitroso-n-ethylurea	B				
n-Nitroso-n-methylethylamine	B2			2.2E+01	
n-Nitrosodi-n-propylamine	B2			7.0E−00	
n-Nitrosodiethanolamine	B2			2.8E−00	
n-Nitrosodiphenylamine	B2			4.9E−03	
n-Nitrosopyrrolidine	B2			2.1E−00	2.1E−00
Nickel	D	2.0E−02			
Nickel refinery dust	A				8.4E−01
Nitric oxide	D	1.0E−01			
Nitrobenzene	D	5.0E−04	60E−04		
Nitrogen dioxide	D	1.0E−00			
Osmium tetroxide	D	1.0E−05			
Parathion	C	6.0E−03			
Pentachlorobenzene	D	8.0E−04			
Pentachloronitrobenzene	C	3.0E−03			2.5E−01
Pentachlorophenol	D	3.0E−02			
Phenol	D	6.0E−01			
Phenyl mercuric acetate	D	8.0E−05			
Phosphine	D	3.0E−04			
Phthalic anhydride	D	2.0E−00			
Polychlorinated biphenyls	B2			7.7E−00	
Potassium cyanide	D	5.0E−02			
Potassium silver cyanide	D	2.0E−01			
Pronamide	D	7.5E−02			
Pyridine	D	1.0E−03			
Selenious acid	D	3.0E−03			
Selenourea	D	5.0E−03			
Silver	D	3.0E−03			
Silver cyanide	D	1.0E−01			
Sodium cyanide	D	4.0E−02			

APPENDIX F—LIST OF CONSTITUENTS SHOWING ACTION LEVEL SOURCE DATA—Continued

Constituent name	Class	Noncarcinogenic effects		Carcinogenic e	
		Oral RFD (mg/kg/d)	Inhalation RFD (mg/kg/d)	Oral slope factor (mg/kg/d)-1	In slo (mg
Strychnine	D	3.0E−04			
Styrene	C	2.0E−01			
1,1,1,2-Tetrachlorethane	C	3.0E−02		2.6E−02	2
1,2,4,5-Tetrachlorobenzene	D	3.0E−04			
1,1,1,2-Tetrachloroethane	C	3.0E−02		2.6E−02	2
1,1,2,2-Tetrachloroethane	C			2.0E−01	2
Tetrachloroethylene	B2	1.0E−02		5.1E−02	3
2,3,4,6-Tetrachlorophenol	D	3.0E−02			
Tetraethyl lead	D	1.0E−07			
Tetraethyldithiopyrophosphate	D	5.0E−04			
Thallic oxide	D	7.0E−05			
Thallium acetate	D	9.0E−05			
Thallium carbonate	D	8.0E−05			
Thallium chloride	D	8.0E−05			
Thallium nitrate	D	9.0E−05			
Thallium sulfate	D	8.0E−05			
Thiosemicarbazide	D	6.0E−03			
Thiram	D	5.0E−03			
Toluene	D	3.0E−01	2.0E−00		
Toxaphene	B2			1.1E−00	1
1,2,4-Trichlorobenzene	D	2.0E−02	3.0E−03		
1,1,1-Trichloroethane	D	9.0E−02	3.0E−01		
1,1,2-Trichloroethane	C	4.0E−03		5.7E−02	5
Trichloroethylene	B2			1.1E−02	
Trichloromonofluoromethane	D	3.0E−01	2.0E−01		
2,4,5-Trichlorophenol	D	1.0E−01			
2,4,6-Trichlorophenol	B2			2.0E−02	2
2,4,5-Trichlorophenoxyacetic acid	D	1.0E−02			
1,2,3-Trichloropropane	D	6.0E−03			
Vanadium pentoxide	D	9.0E−03			
Xylenes	D	2.0E−00	3.0E−01		
Zinc cyanide	D	5.0E−02			
Zinc phosphide	D	3.0E−04			

For the reasons set out in the preamble, 40 CFR parts 264, 265, 270, and 271 are proposed to be amended as follows:

PART 264—STANDARDS FOR OWNERS AND OPERATORS OF HAZARDOUS WASTE TREATMENT, STORAGE, AND DISPOSAL FACILITIES

1. The authority citation for part 264 continues to read as follows:

Authority: 42 U.S.C. 6905, 6912(a), 6924, and 6925.

2. Section 264.1 is amended by revising paragraphs (d) and (g) introductory text to read as follows:

§ 264.1 Purpose, scope and applicability.

* * * * *

(d) The requirements of this part apply to a person disposing of hazardous waste by means of underground injection subject to a permit issued under an Underground Injection control (UIC) program approved or promulgated under the Safe Drinking Water Act only to the extent they are required by § 144.14 of this chapter and to the extent they are included in a RCRA permit by rule granted to such a person under part 270 of this chapter.

* * * * *

(g) Except as required under subpart S of this part governing releases from solid waste management units, the requirements of this part do not apply to:

* * * * *

§ 264.101 [Removed]

3. In 40 CFR part 264, subpart F, it is proposed to remove § 264.101.

4. In 40 CFR part 264, subpart G, it is proposed to amend § 264.113 by redesignating paragraphs (a)(1)(ii) as (a)(1)(iii) and (b)(1)(ii) as (b)(1)(iii), and by adding new paragraphs (a)(1)(ii) and (b)(1)(ii) to read as follows:

§ 264.113 Closure time allowed for closure.

* * * * *

(a) * * *

(1) * * *

(ii) Corrective action required at the unit or the facility under subpart S will delay the completion of partial or final closure; or

* * * * *

(b) * * *

(1) * * *

(ii) Corrective action required at t unit or the facility under subpart S v delay the completion of partial or fi closure; or

* * * * *

5. 40 CFR part 264 is amended by adding subpart S to read as follows

Subpart S—Corrective Action for Solid Waste Management Units

EXHIBIT T

federal register

Monday
September 19, 1994

Part II

Environmental Protection Agency

40 CFR Part 268

Hazardous Waste Management System; Testing and Monitoring Activities, Land Disposal Restrictions Correction; Final Rule

40 CFR Parts 148, et al.

Land Disposal Restrictions Phase II—Universal Treatment Standards, and Treatment Standards for Organic Toxicity Characteristic Wastes and Newly Listed Wastes; Final Rule

TREATMENT STANDARDS FOR HAZARDOUS WASTES

Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] Number	Concentration in mg/l[3], or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP" or Technology Code
D001	Ignitable Characteristic Wastes, except for the §261.21(a)(1) High TOC Subcategory, that are managed in non-CWA/non-CWA equivalent/non-Class I SDWA systems	NA	NA	DEACT and meet §268.48 standards; or RORGS, or CMBST	DEACT and meet §268.48 standards, or RORGS, or CMBST
	Ignitable Characteristic Wastes, except for the §261.21(a)(1) High TOC Subcategory, that are managed in CWA/CWA-equivalent/Class I SDWA systems	NA	NA	DEACT	DEACT
	High TOC Ignitable Characteristic Liquids Subcategory based on 40 CFR 261.21(a)(1) - Greater than or equal to 10% total organic carbon. (Note: This subcategory consists of nonwastewaters only.)	NA	NA	NA	RORGS; or CMBST
D002	Corrosive Characteristic Wastes that are managed in non-CWA/non-CWA equivalent/non-Class I SDWA systems.	NA	NA	DEACT and meet §268.48 standards	DEACT and meet §268.48 standards
	Corrosive Characteristic Wastes that are managed in CWA, CWA-equivalent, or Class I SDWA systems.	NA	NA	DEACT	DEACT
D002, D004, D005, D006, D007, D008, D009, D010, D011	Radioactive high level wastes generated during the reprocessing of fuel rods. (Note: This subcategory consists of nonwastewaters only.)	Corrosivity (pH)	NA	NA	HLVIT
		Arsenic	7440-38-2	NA	HLVIT
		Barium	7440-39-3	NA	HLVIT
		Cadmium	7440-43-9	NA	HLVIT
		Chromium (Total)	7440-47-3	NA	HLVIT
		Lead	7439-92-1	NA	HLVIT
		Mercury	7439-97-6	NA	HLVIT
		Selenium	7782-49-2	NA	HLVIT
		Silver	7440-22-4	NA	HLVIT
D003	Reactive Sulfides Subcategory based on 261.23(a)(5).	NA	NA	DEACT	DEACT
	Explosives Subcategory based on 261.23(a)(6), (7), and (8).	NA	NA	DEACT	DEACT
	Other Reactives Subcategory based on 261.23(a)(1).	NA	NA	DEACT	DEACT
	Water Reactive Subcategory based on 261.23(a)(2), (3), and (4). (Note: This subcategory consists of nonwastewaters only.)	NA	NA	NA	DEACT
	Reactive Cyanides Subcategory based on 261.23(a)(5).	Cyanides (Total)[7]	57-12-5	Reserved	590
		Cyanides (Amenable)[7]	57-12-5	0.86	30
D004	Wastes that exhibit, or are expected to exhibit, the characteristic of toxicity for arsenic based on the extraction procedure (EP) in SW846 Method 1310.	Arsenic	7440-38-2	5.0	5.0 mg/l EP
		Arsenic; alternate[6] standard for nonwastewaters only.	7440-38-2	NA	5.0 mg/l TCLP
D005	Wastes that exhibit, or are expected to exhibit, the characteristic of toxicity for barium based on the extraction procedure (EP) in SW846 Method 1310.	Barium	7440-39-3	100	100 mg/l TCLP

TREATMENT STANDARDS FOR HAZARDOUS WASTES

Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	Regulated hazardous constituent		Wastewaters	Nonwastewaters
		Common Name	CAS[2] Number	Concentration in mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
D006	Wastes that exhibit, or are expected to exhibit, the characteristic of toxicity for cadmium based on the extraction procedure (EP) in SW846 Method 1310	Cadmium	7440-43-9	1.0	1.0 mg/l TCLP
	Cadmium Containing Batteries Subcategory. (Note: This subcategory consists of nonwastewaters only.)	Cadmium	7440-43-9	NA	RTHRM
D007	Wastes that exhibit, or are expected to exhibit, the characteristic of toxicity for chromium based on the extraction procedure (EP) in SW846 Method 1310.	Chromium (Total)	7440-47-3	5.0	5.0 mg/l TCLP
D008	Wastes that exhibit, or are expected to exhibit, the characteristic of toxicity for lead based on the extraction procedure (EP) in SW846 Method 1310.	Lead	7439-92-1	5.0	5.0 mg/l EP
		Lead; alternate[6] standard for nonwastewaters only	7439-92-1	NA	5.0 mg/l TCLP
	Lead Acid Batteries Subcategory (Note: This standard only applies to lead acid batteries that are identified as RCRA hazardous wastes and that are not excluded elsewhere from regulation under the land disposal restrictions of 40 CFR 268 or exempted under other EPA regulations (see 40 CFR 266.80).) (Note: This subcategory consists of nonwastewaters only.)	Lead	7439-92-1	NA	RLEAD
	Radioactive Lead Solids Subcategory (Note: these lead solids include, but are not limited to, all forms of lead shielding and other elemental forms of lead. These lead solids do not include treatment residuals such as hydroxide sludges, other wastewater treatment residuals, or incinerator ashes that can undergo conventional pozzolanic stabilization, nor do they include organo-lead materials that can be incinerated and stabilized as ash.) (Note: This subcategory consists of nonwastewaters only.)	Lead	7439-92-1	NA	MACRO
D009	Nonwastewaters that exhibit, or are expected to exhibit, the characteristic of toxicity for mercury based on the extraction procedure (EP) in SW846 Method 1310, and contain greater than or equal to 260 mg/kg total mercury that also contain organics and are not incinerator residues. (High Mercury-Organic Subcategory)	Mercury	7439-97-6	NA	IMERC; OR RMERC
	Nonwastewaters that exhibit, or are expected to exhibit, the characteristic of toxicity for mercury based on the extraction procedure (EP) in SW846 Method 1310; and contain greater than or equal to 260 mg/kg total mercury that that are inorganic, including incinerator residues and residues from RMERC. (High Mercury Inorganic Subcategory)	Mercury	7439-97-6	NA	RMERC
	Nonwastewaters that exhibit, or are expected to exhibit, the characteristic of toxicity for mercury based on the extraction procedure (EP) in SW846 Method 1310; and contain less than 260 mg/kg total mercury. (Low Mercury Subcategory)	Mercury	7439-97-6	NA	0.20 mg/l TCLP
	All D009 wastewaters	Mercury	7439-97-6	0.20	NA
	Elemental mercury contaminated with radioactive materials (Note: This subcategory consists of nonwastewaters only.)	Mercury	7439-97-6	NA	AMLGM
	Hydraulic oil contaminated with Mercury Radioactive Materials Subcategory. (Note: This subcategory consists of nonwastewaters only.)	Mercury	7439-97-6	NA	IMERC

TREATMENT STANDARDS FOR HAZARDOUS WASTES

Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	Regulated Hazardous Constituent: Common Name	Regulated Hazardous Constituent: CAS[2] Number	Wastewaters: Concentration in mg/l[3]; or Technology Code[4]	Nonwastewaters: Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
D010	Wastes that exhibit, or are expected to exhibit, the characteristic of toxicity for selenium based on the extraction procedure (EP) in SW846 Method 1310.	Selenium	7782-49-2	1.0	5.7 mg/l TCLP
D011	Wastes that exhibit, or are expected to exhibit, the characteristic of toxicity for silver based on the extraction procedure (EP) in SW846 Method 1310.	Silver	7440-22-4	5.0	5.0 mg/l TCLP
D012	Wastes that are TC for Endrin based on the TCLP in SW846 Method 1311.	Endrin	72-20-8	BIODG; or INCIN	0.13 and meet §268.48 standards
		Endrin aldehyde	7421-93-4	BIODG; or INCIN	0.13 and meet §268.48 standards
D013	Wastes that are TC for Lindane based on the TCLP in SW846 Method 1311.	alpha-BHC	319-84-6	CARBN; or INCIN	0.066 and meet §268.48 standards
		beta-BHC	319-85-7	CARBN; or INCIN	0.066 and meet §268.48 standards
		delta-BHC	319-86-8	CARBN; or INCIN	0.066 and meet §268.48 standards
		gamma-BHC (Lindane)	58-89-9	CARBN; or INCIN	0.066 and meet §268.48 standards
D014	Wastes that are TC for Methoxychlor based on the TCLP in SW846 Method 1311.	Methoxychlor	72-43-5	WETOX or INCIN	0.18 and meet §268.48 standards
D015	Wastes that are TC for Toxaphene based on the TCLP in SW846 Method 1311.	Toxaphene	8001-35-2	BIODG or INCIN	2.6 and meet §268.48 standards
D016	Wastes that are TC for 2,4-D (2,4-Dichlorophenoxyacetic acid) based on the TCLP in SW846 Method 1311.	2,4-D (2,4-Dichlorophenoxyacetic acid)	94-75-7	CHOXD, BIODG, or INCIN	10 and meet §268.48 standards
D017	Wastes that are TC for 2,4,5-TP (Silvex) based on the TCLP in SW846 Method 1311.	2,4,5-TP (Silvex)	93-72-1	CHOXD or INCIN	7.9 and meet §268.48 standards
D018	Wastes that are TC for Benzene based on the TCLP in SW846 Method 1311 and that are managed in non-CWA/non-CWA equivalent/non-Class I SDWA systems only.	Benzene	71-43-2	0.14	10 and meet §268.48 standards
D019	Wastes that are TC for Carbon tetrachloride based on the TCLP in SW846 Method 1311 and that are managed in non-CWA/non-CWA equivalent/non-Class I SDWA systems only.	Carbon tetrachloride	56-23-5	0.057	6.0 and meet §268.48 standards
D020	Wastes that are TC for Chlordane based on the TCLP in SW846 Method 1311 and that are managed in non-CWA/non-CWA equivalent/non-Class I SDWA systems only.	Chlordane (alpha and gamma isomers)	57-74-9	0.0033	0.26 and meet §268.48 standards
D021	Wastes that are TC for Chlorobenzene based on the TCLP in SW846 Method 1311 and that are managed in non-CWA/non-CWA equivalent/non-Class I SDWA systems only.	Chlorobenzene	108-90-7	0.057	6.0 and meet §268.48 standards
D022	Wastes that are TC for Chloroform based on the TCLP in SW846 Method 1311 and that are managed in non-CWA/non-CWA equivalent/non-Class I SDWA systems only.	Chloroform	67-66-3	0.046	6.0 and meet §268.48 standards

TREATMENT STANDARDS FOR HAZARDOUS WASTES

Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] Number	Concentration in mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
D023	Wastes that are TC for o-Cresol based on the TCLP in SW846 Method 1311 and that are managed in non-CWA/non-CWA equivalent/non-Class I SDWA systems only	o-Cresol	95-48-7	0.11	5.6 and meet §268.48 standards
D024	Wastes that are TC for m-Cresol based on the TCLP in SW846 Method 1311 and that are managed in non-CWA/non-CWA equivalent/non-Class I SDWA systems only	m-Cresol (difficult to distinguish from p-cresol)	108-39-4	0.77	5.6 and meet §268.48 standards
D025	Wastes that are TC for p-Cresol based on the TCLP in SW846 Method 1311 and that are managed in non-CWA/non-CWA equivalent/non-Class I SDWA systems only.	p-Cresol (difficult to distinguish from m-cresol)	106-44-5	0.77	5.6 and meet §268.48 standards
D026	Wastes that are TC for Cresols (Total) based on the TCLP in SW846 Method 1311 and that are managed in non-CWA/non-CWA equivalent/non-Class I SDWA systems only.	Cresol-mixed isomers (Cresylic acid) (sum of o-, m-, and p-cresol concentrations)	1319-77-3	0.88	11.2 and meet §268.48 standards
D027	Wastes that are TC for p-Dichlorobenzene based on the TCLP in SW846 Method 1311 and that are managed in non-CWA/non-CWA equivalent/non-Class I SDWA systems only.	p-Dichlorobenzene (1,4-Dichlorobenzene)	106-46-7	0.090	6.0 and meet §268.48 standards
D028	Wastes that are TC for 1,2-Dichloroethane based on the TCLP in SW846 Method 1311 and that are managed in non-CWA/non-CWA equivalent/non-Class I SDWA systems only.	1,2-Dichloroethane	107-06-2	0.21	6.0 and meet §268.48 standards
D029	Wastes that are TC for 1,1-Dichloroethylene based on the TCLP in SW846 Method 1311 and that are managed in non-CWA/non-CWA equivalent/non-Class I SDWA systems only.	1,1-Dichloroethylene	75-35-4	0.025	6.0 and meet §268.48 standards
D030	Wastes that are TC for 2,4-Dinitrotoluene based on the TCLP in SW846 Method 1311 and that are managed in non-CWA/non-CWA equivalent/non-Class I SDWA systems only.	2,4-Dinitrotoluene	121-14-2	0.32	140 and meet §268.48 standards
D031	Wastes that are TC for Heptachlor based on the TCLP in SW846 Method 1311 and that are managed in non-CWA/non-CWA equivalent/non-Class I SDWA systems only.	Heptachlor	76-44-8	0.0012	0.066 and meet §268.48 standards
		Heptachlor epoxide	1024-57-3	0.016	0.066 and meet §268.48 standards
D032	Wastes that are TC for Hexachlorobenzene based on the TCLP in SW846 Method 1311 and that are managed in non-CWA/non-CWA equivalent/non-Class I SDWA systems only.	Hexachlorobenzene	118-74-1	0.055	10 and meet §268.48 standards
D033	Wastes that are TC for Hexachlorobutadiene based on the TCLP in SW846 Method 1311 and that are managed in non-CWA/non-CWA equivalent/non-Class I SDWA systems only	Hexachlorobutadiene	87-68-3	0.055	5.6 and meet §268.48 standards
D034	Wastes that are TC for Hexachloroethane based on the TCLP in SW846 Method 1311 and that are managed in non-CWA/non-CWA equivalent/non-Class I SDWA systems only.	Hexachloroethane	67-72-1	0.055	30 and meet §268.48 standards
D035	Wastes that are TC for Methyl ethyl ketone based on the TCLP in SW846 Method 1311 and that are managed in non-CWA/non-CWA equivalent/non-Class I SDWA systems only.	Methyl ethyl ketone	78-93-3	0.28	36 and meet §268.48 standards

TREATMENT STANDARDS FOR HAZARDOUS WASTES

Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	Regulated Hazardous Constituent		Wastewaters	Nonwastewaters
		Common Name	CAS[2] Number	Concentration in mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
D036	Wastes that are TC for Nitrobenzene based on the TCLP in SW846 Method 1311 and that are managed in non-CWA/non-CWA equivalent/non-Class I SDWA systems only.	Nitrobenzene	98-95-3	0.068	14 and meet §268.48 standards
D037	Wastes that are TC for Pentachlorophenol based on the TCLP in SW846 Method 1311 and that are managed in non-CWA/non-CWA equivalent/non-Class I SDWA systems only.	Pentachlorophenol	87-86-5	0.089	7.4 and meet §268.48 standards
D038	Wastes that are TC for Pyridine based on the TCLP in SW846 Method 1311 and that are managed in non-CWA/non-CWA equivalent/non-Class I SDWA systems only.	Pyridine	110-86-1	0.014	16 and meet §268.48 standards
D039	Wastes that are TC for Tetrachloroethylene based on the TCLP in SW846 Method 1311 and that are managed in non-CWA/non-CWA equivalent/non-Class I SDWA systems only.	Tetrachloroethylene	127-18-4	0.056	6.0 and meet §268.48 standards
D040	Wastes that are TC for Trichloroethylene based on the TCLP in SW846 Method 1311 and that are managed in non-CWA/non-CWA equivalent/non-Class I SDWA systems only.	Trichloroethylene	79-01-6	0.054	6.0 and meet §268.48 standards
D041	Wastes that are TC for 2,4,5-Trichlorophenol based on the TCLP in SW846 Method 1311 and that are managed in non-CWA/non-CWA equivalent/non-Class I SDWA systems only.	2,4,5-Trichlorophenol	95-95-4	0.18	7.4 and meet §268.48 standards
D042	Wastes that are TC for 2,4,6-Trichlorophenol based on the TCLP in SW846 Method 1311 and that are managed in non-CWA/non-CWA equivalent/non-Class I SDWA systems only.	2,4,6-Trichlorophenol	88-06-2	0.035	7.4 and meet §268.48 standards
D043	Wastes that are TC for Vinyl chloride based on the TCLP in SW846 Method 1311 and that are managed in non-CWA/non-CWA equivalent/non-Class I SDWA systems only.	Vinyl chloride	75-01-4	0.27	6.0 and meet §268.48 standards
F001, F002, F003, F004, & F005	F001, F002, F003, F004 and/or F005 solvent wastes that contain any combination of one or more of the following spent solvents: acetone, benzene, n-butyl alcohol, carbon disulfide, carbon tetrachloride, chlorinated fluorocarbons, chlorobenzene, o-cresol, m-cresol, p-cresol, cyclohexanone, o-dichlorobenzene, 2-ethoxyethanol, ethyl acetate, ethyl benzene, ethyl ether, isobutyl alcohol, methanol, methylene chloride, methyl ethyl ketone, methyl isobutyl ketone, nitrobenzene, 2-nitropropane, pyridine, tetrachloroethylene, toluene, 1,1,1-trichloroethane, 1,1,2-trichloroethane, 1,1,2-trichloro-1,2,2-trifluoroethane, trichloroethylene, trichloromonofluoromethane, and/or xylenes [except as specifically noted in other subcategories]. See further details of these listings in § 261.31	Acetone	67-64-1	0.28	160
		Benzene	71-43-2	0.14	10
		n-Butyl alcohol	71-36-3	5.6	2.6
		Carbon disulfide	75-15-0	3.8	NA
		Carbon tetrachloride	56-23-5	0.057	6.0
		Chlorobenzene	108-90-7	0.057	6.0
		o-Cresol	95-48-7	0.11	5.6
		m-Cresol (difficult to distinguish from p-cresol)	108-39-4	0.77	5.6
		p-Cresol (difficult to distinguish from m-cresol)	106-44-5	0.77	5.6
		Cresol-mixed isomers (Cresylic acid) (sum of o-, m-, and p-cresol concentrations)	1319-77-3	0.88	11.2
		Cyclohexanone	108-94-1	0.36	NA

TREATMENT STANDARDS FOR HAZARDOUS WASTES

Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	Regulated Hazardous Constituent		Wastewaters	Nonwastewaters
		Common Name	CAS[2] Number	Concentration in mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
		o-Dichlorobenzene	95-50-1	0.088	6.0
		Ethyl acetate	141-78-6	0.34	33
		Ethyl benzene	100-41-4	0.057	10
		Ethyl ether	60-29-7	0.12	160
		Isobutyl alcohol	78-83-1	5.6	170
		Methanol	67-56-1	5.6	NA
		Methylene chloride	75-09-2	0.089	30
		Methyl ethyl ketone	78-93-3	0.28	36
		Methyl isobutyl ketone	108-10-1	0.14	33
		Nitrobenzene	98-95-3	0.068	14
		Pyridine	110-86-1	0.014	16
		Tetrachloroethylene	127-18-4	0.056	6.0
		Toluene	108-88-3	0.080	10
		1,1,1-Trichloroethane	71-55-6	0.054	6.0
		1,1,2-Trichloroethane	79-00-5	0.054	6.0
		1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	0.057	30
		Trichloroethylene	79-01-6	0.054	6.0
		Trichloromonofluoromethane	75-69-4	0.020	30
		Xylenes-mixed isomers (sum of o-, m-, and p-xylene concentrations)	1330-20-7	0.32	30
	F003 and/or F005 solvent wastes that contain any combination of one or more of the following three solvents as the only listed F001-5 solvents: carbon disulfide, cyclohexanone, and/or methanol. (formerly 268.41(c))	Carbon disulfide	75-15-0	3.8	4.8 mg/l TCLP
		Cyclohexanone	108-94-1	0.36	0.75 mg/l TCLP
		Methanol	67-56-1	5.6	0.75 mg/l TCLP
	F005 solvent waste containing 2-Nitropropane as the only listed F001-5 solvent.	2-Nitropropane	79-46-9	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
	F005 solvent waste containing 2-Ethoxyethanol as the only listed F001-5 solvent.	2-Ethoxyethanol	110-80-5	BIODG; or INCIN	INCIN

TREATMENT STANDARDS FOR HAZARDOUS WASTES

Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] Number	Concentration in mg/l[5]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
F006	Wastewater treatment sludges from electroplating operations except from the following processes: (1) Sulfuric acid anodizing of aluminum; (2) tin plating on carbon steel; (3) zinc plating (segregated basis) on carbon steel; (4) aluminum or zinc-aluminum plating on carbon steel; (5) cleaning/stripping associated with tin, zinc and aluminum plating on carbon steel; and (6) chemical etching and milling of aluminum.	Cadmium	7440-43-9	0.69	0.19 mg/l TCLP
		Chromium (Total)	7440-47-3	2.77	0.86 mg/l TCLP
		Cyanides (Total)[7]	57-12-5	1.2	590
		Cyanides (Amenable)[7]	57-12-5	0.86	30
		Lead	7439-92-1	0.69	0.37 mg/l TCLP
		Nickel	7440-02-0	3.98	5.0 mg/l TCLP
		Silver	7440-22-4	NA	0.30 mg/l TCLP
F007	Spent cyanide plating bath solutions from electroplating operations.	Cadmium	7440-43-9	NA	0.19 mg/l TCLP
		Chromium (Total)	7440-47-3	2.77	0.86 mg/l TCLP
		Cyanides (Total)[7]	57-12-5	1.2	590
		Cyanides (Amenable)[7]	57-12-5	0.86	30
		Lead	7439-92-1	0.69	0.37 mg/l TCLP
		Nickel	7440-02-0	3.98	5.0 mg/l TCLP
		Silver	7440-22-4	NA	0.30 mg/l TCLP
F008	Plating bath residues from the bottom of plating baths from electroplating operations where cyanides are used in the process.	Cadmium	7440-43-9	NA	0.19 mg/l TCLP
		Chromium (Total)	7440-47-3	2.77	0.86 mg/l TCLP
		Cyanides (Total)[7]	57-12-5	1.2	590
		Cyanides (Amenable)[7]	57-12-5	0.86	30
		Lead	7439-92-1	0.69	0.37 mg/l TCLP
		Nickel	7440-02-0	3.98	5.0 mg/l TCLP
		Silver	7440-22-4	NA	0.30 mg/l TCLP
F009	Spent stripping and cleaning bath solutions from electroplating operations where cyanides are used in the process.	Cadmium	7440-43-9	NA	0.19 mg/l TCLP
		Chromium (Total)	7440-47-3	2.77	0.86 mg/l TCLP
		Cyanides (Total)[7]	57-12-5	1.2	590
		Cyanides (Amenable)[7]	57-12-5	0.86	30
		Lead	7439-92-1	0.69	0.37 mg/l TCLP
		Nickel	7440-02-0	3.98	5.0 mg/l TCLP
		Silver	7440-22-4	NA	0.30 mg/l TCLP

TREATMENT STANDARDS FOR HAZARDOUS WASTES

Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	Regulated Hazardous Constituent: Common Name	Regulated Hazardous Constituent: CAS[2] Number	Wastewaters: Concentration in mg/l[3]; or Technology Code[4]	Nonwastewaters: Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
F010	Quenching bath residues from oil baths from metal heat treating operations where cyanides are used in the process.	Cyanides (Total)[7]	57-12-5	1.2	590
		Cyanides (Amenable)[7]	57-12-5	0.86	NA
F011	Spent cyanide solutions from salt bath pot cleaning from metal heat treating operations.	Cadmium	7440-43-9	NA	0.19 mg/l TCLP
		Chromium (Total)	7440-47-3	2.77	0.86 mg/l TCLP
		Cyanides (Total)[7]	57-12-5	1.2	590
		Cyanides (Amenable)[7]	57-12-5	0.86	30
		Lead	7439-92-1	0.69	0.37 mg/l TCLP
		Nickel	7440-02-0	3.98	5.0 mg/l TCLP
		Silver	7440-22-4	NA	0.30 mg/l TCLP
F012	Quenching wastewater treatment sludges from metal heat treating operations where cyanides are used in the process	Cadmium	7440-43-9	NA	0.19 mg/l TCLP
		Chromium (Total)	7440-47-3	2.77	0.86 mg/l TCLP
		Cyanides (Total)[7]	57-12-5	1.2	590
		Cyanides (Amenable)[7]	57-12-5	0.86	30
		Lead	7439-92-1	0.69	0.37 mg/l TCLP
		Nickel	7440-02-0	3.98	5.0 mg/l TCLP
		Silver	7440-22-4	NA	0.30 mg/l TCLP
F019	Wastewater treatment sludges from the chemical conversion coating of aluminum except from zirconium phosphating in aluminum can washing when such phosphating is an exclusive conversion coating process.	Chromium (Total)	7440-47-3	2.77	0.86 mg/l TCLP
		Cyanides (Total)[7]	57-12-5	1.2	590
		Cyanides (Amenable)[7]	57-12-5	0.86	30
F020, F021, F022, F023, F026	Wastes (except wastewater and spent carbon from hydrogen chloride purification) from the production or manufacturing use (as a reactant, chemical intermediate, or component in a formulating process) of: (1) tri- or tetrachlorophenol, or of intermediates used to produce their pesticide derivatives, excluding wastes from the production of Hexachlorophene from highly purified 2,4,5-trichlorophenol (F020); (2) pentachlorophenol, or of intermediates used to produce its derivatives (i.e., F021); (3) tetra-, penta-, or hexachlorobenzenes under alkaline conditions (i.e., F022). Wastes (except wastewater and spent carbon from hydrogen chloride purification) from the production of materials on equipment previously used for the production or manufacturing use (as a reactant, chemical intermediate, or component in a formulating process) of: (1) tri- or tetrachlorophenols, excluding wastes from equipment used only for the production of Hexachlorophene from highly purified 2,4,5-trichlorophenol (F023); (2) tetra-, penta-, or hexachlorobenzenes under alkaline conditions (i.e., F026).	HxCDDs (All Hexachlorodibenzo-p-dioxins)	NA	0.000063	0.001
		HxCDFs (All Hexachlorodibenzofurans)	NA	0.000063	0.001
		PeCDDs (All Pentachlorodibenzo-p-dioxins)	NA	0.000063	0.001
		PeCDFs (All Pentachlorodibenzofurans)	NA	0.000035	0.001
		TCDDs (All Tetrachlorodibenzo-p-dioxins)	NA	0.000063	0.001
		TCDFs (All Tetrachlorodibenzofurans)	NA	0.000063	0.001
		2,4,5-Trichlorophenol	95-95-4	0.18	7.4
		2,4,6-Trichlorophenol	88-06-2	0.035	7.4
		2,3,4,6-Tetrachlorophenol	58-90-2	0.030	7.4

TREATMENT STANDARDS FOR HAZARDOUS WASTES

Waste Code	Waste Description and Treatment/Regulatory Subcategory¹	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS² Number	Concentration in mg/l³; or Technology Code⁴	Concentration in mg/kg⁵ unless noted as "mg/l TCLP"; or Technology Code
		Pentachlorophenol	87 86-5	0 089	7 4
F027	Discarded unused formulations containing tri-, tetra-, or pentachlorophenol or discarded unused formulations containing compounds derived from these chlorophenols. (This listing does not include formulations containing hexachlorophene synthesized from prepurified 2,4,5-trichlorophenol as the sole component.).	HxCDDs (All Hexachlorodibenzo-p-dioxins)	NA	0 000063	0 001
		HxCDFs (All Hexachlorodibenzofurans)	NA	0.000063	0 001
		PeCDDs (All Pentachlorodibenzo-p-dioxins)	NA	0 000063	0 001
		PeCDFs (All Pentachlorodibenzofurans)	NA	0.000035	0 001
		TCDDs (All Tetrachlorodibenzo-p-dioxins)	NA	0.000063	0 001
		TCDFs (All Tetrachlorodibenzofurans)	NA	0 000063	0 001
		2,4,5-Trichlorophenol	95-95-4	0.18	7 4
		2,4,6-Trichlorophenol	88-06-2	0 035	7.4
		2,3,4,6-Tetrachlorophenol	58-90-2	0 030	7 4
		Pentachlorophenol	87-86-5	0.089	7 4
F028	Residues resulting from the incineration or thermal treatment of soil contaminated with EPA Hazardous Wastes Nos. F020, F021, F023, F026, and F027.	HxCDDs (All Hexachlorodibenzo-p-dioxins)	NA	0.000063	0 001
		HxCDFs (All Hexachlorodibenzofurans)	NA	0.000063	0 001
		PeCDDs (All Pentachlorodibenzo-p-dioxins)	NA	0 000063	0 001
		PeCDFs (All Pentachlorodibenzofurans)	NA	0 000035	0 001
		TCDDs (All Tetrachlorodibenzo-p-dioxins)	NA	0 000063	0 001
		TCDFs (All Tetrachlorodibenzofurans)	NA	0 000063	0 001
		2,4,5-Trichlorophenol	95 95-4	0 18	7 4
		2,4,6-Trichlorophenol	88-06-2	0.035	7 4
		2,3,4,6-Tetrachlorophenol	58-90-2	0 030	7 4
		Pentachlorophenol	87-86-5	0.089	7 4
F024	Process wastes, including but not limited to, distillation residues, heavy ends, tars, and reactor clean-out wastes, from the production of certain chlorinated aliphatic hydrocarbons by free radical catalyzed processes. These chlorinated aliphatic hydrocarbons are those having carbon chain lengths ranging from one to and including five, with varying amounts and positions of chlorine substitution. (This listing does not include wastewaters, wastewater treatment sludges, spent catalysts, and wastes listed in §261.31 or §261.32.).	All F024 wastes	NA	INCIN	INCIN
		2-Chloro-1,3-butadiene	126-99 8	0 057	0 28
		3-Chloropropylene	107-05-1	0 036	30
		1,1-Dichloroethane	75-34-3	0 059	6 0
		1,2-Dichloroethane	107 06 2	0 21	6 0
		1,2-Dichloropropane	78 87 5	0 85	18
		cis-1,3 Dichloropropylene	10061 01-5	0 036	18

TREATMENT STANDARDS FOR HAZARDOUS WASTES

Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] Number	Concentration in mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
		trans-1,3-Dichloropropylene	10061-02-6	0.036	18
		bis(2-Ethylhexyl) phthalate	117-81-7	0.28	28
		Hexachloroethane	67-72-1	0.055	30
		Chromium (Total)	7440-47-3	2.77	0.86 mg/l TCLP
		Nickel	7440-02-0	3.98	5.0 mg/l TCLP
F025	Condensed light ends from the production of certain chlorinated aliphatic hydrocarbons, by free radical catalyzed processes. These chlorinated aliphatic hydrocarbons are those having carbon chain lengths ranging from one to and including five, with varying amounts and positions of chlorine substitution. F025 - Light Ends Subcategory	Carbon tetrachloride	56-23-5	0.057	6.0
		Chloroform	67-66-3	0.046	6.0
		1,2-Dichloroethane	107-06-2	0.21	6.0
		1,1-Dichloroethylene	75-35-4	0.025	6.0
		Methylene chloride	75-9-2	0.089	30
		1,1,2-Trichloroethane	79-00-5	0.054	6.0
		Trichloroethylene	79-01-6	0.054	6.0
		Vinyl chloride	75-01-4	0.27	6.0
	Spent filters and filter aids, and spent desiccant wastes from the production of certain chlorinated aliphatic hydrocarbons, by free radical catalyzed processes. These chlorinated aliphatic hydrocarbons are those having carbon chain lengths ranging from one to and including five, with varying amounts and positions of chlorine substitution. F025 - Spent Filters/Aids and Desiccants Subcategory	Carbon tetrachloride	56-23-5	0.057	6.0
		Chloroform	67-66-3	0.046	6.0
		Hexachlorobenzene	118-74-1	0.055	10
		Hexachlorobutadiene	87-68-3	0.055	5.6
		Hexachloroethane	67-72-1	0.055	30
		Methylene chloride	75-9-2	0.089	30
		1,1,2-Trichloroethane	79-00-5	0.054	6.0
		Trichloroethylene	79-01-6	0.054	6.0
		Vinyl chloride	75-01-4	0.27	6.0

TREATMENT STANDARDS FOR HAZARDOUS WASTES

Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] Number	Concentration in mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
F037	Petroleum refinery primary oil/water/solids separation sludge-Any sludge generated from the gravitational separation of oil/water/solids during the storage or treatment of process wastewaters and oily cooling wastewaters from petroleum refineries. Such sludges include, but are not limited to, those generated in: oil/water/solids separators; tanks and impoundments; ditches and other conveyances; sumps; and stormwater units receiving dry weather flow. Sludge generated in stormwater units that do not receive dry weather flow, sludges generated from non-contact once-through cooling waters segregated for treatment from other process or oily cooling waters, sludges generated in agressive biological treatment units as defined in §261.31(b)(2) (including sludges generated in one or more additional units after wastewaters have been treated in agressive biological treatment units) and K051 wastes are not included in this listing.	Acenaphthene	83-32-9	0.059	NA
		Anthracene	120-12-7	0.059	3.4
		Benzene	71-43-2	0.14	10
		Benz(a)anthracene	56-55-3	0.059	3.4
		Benzo(a)pyrene	50-32-8	0.061	3.4
		bis(2-Ethylhexyl) phthalate	117-81-7	0.28	28
		Chrysene	218-01-9	0.059	3.4
		Di-n-butyl phthalate	84-74-2	0.057	28
		Ethylbenzene	100-41-4	0.057	10
		Fluorene	86-73-7	0.059	NA
		Naphthalene	91-20-3	0.059	5.6
		Phenanthrene	85-01-8	0.059	5.6
		Phenol	108-95-2	0.039	6.2
		Pyrene	129-00-0	0.067	8.2
		Toluene	108-88-3	0.080	10
		Xylenes-mixed isomers (sum of o-, m-, and p-xylene concentrations)	1330-20-7	0.32	30
		Chromium (Total)	7440-47-3	2.77	0.86 mg/l TCLP
		Cyanides (Total)[7]	57-12-5	1.2	590
		Lead	7439-92-1	0.69	NA
		Nickel	7440-02-0	NA	5.0 mg/l TCLP
F038	Petroleum refinery secondary (emulsified) oil/water/solids separation sludge and/or float generated from the physical and/or chemical separation of oil/water/solids in process wastewaters and oily cooling wastewaters from petroleum refineries. Such wastes include, but are not limited to, all sludges and floats generated in: induced air floatation (IAF) units, tanks and impoundments, and all sludges generated in DAF units. Sludges generated in stormwater units that do not receive dry weather flow, sludges generated from non-contact once-through cooling waters segregated for treatment from other process or oily cooling waters, sludges and floats generated in agressive biological treatment units as defined in §261.31(b)(2) (including sludges and floats generated in one or more additional units after wastewaters have been treated in agressive biological units) and F037, K048, and K051 are not included in this listing.	Benzene	71-43-2	0.14	10
		Benzo(a)pyrene	50-32-8	0.061	3.4
		bis(2-Ethylhexyl) phthalate	117-81-7	0.28	28
		Chrysene	218-01-9	0.059	3.4
		Di-n-butyl phthalate	84-74-2	0.057	28
		Ethylbenzene	100-41-4	0.057	10
		Fluorene	86-73-7	0.059	NA
		Naphthalene	91-20-3	0.059	5.6

TREATMENT STANDARDS FOR HAZARDOUS WASTES

Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	Regulated Hazardous Constituent		Wastewaters	Nonwastewaters
		Common Name	CAS[2] Number	Concentration in mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP", or Technology Code
		Phenanthrene	85-01-8	0.059	5.6
		Phenol	108-95-2	0.039	6.2
		Pyrene	129-00-0	0.067	8.2
		Toluene	108-88-3	0.080	10
		Xylenes-mixed isomers (sum of o-, m-, and p-xylene concentrations)	1330-20-7	0.32	30
		Chromium (Total)	7440-47-3	2.77	0.86 mg/l TCLP
		Cyanides (Total)[7]	57-12-5	1.2	590
		Lead	7439-92-1	0.69	NA
		Nickel	7440-02-0	NA	5.0 mg/l TCLP
F039	Leachate (liquids that have percolated through land disposed wastes) resulting from the disposal of more than one restricted waste classified as hazardous under subpart D of this part. (Leachate resulting from the disposal of one or more of the following EPA Hazardous Wastes and no other Hazardous Wastes retains its EPA Hazardous Waste Number(s): F020, F021, F022, F026, F027, and/or F028.).	Acenaphthylene	208-96-8	0.059	3.4
		Acenaphthene	83-32-9	0.059	3.4
		Acetone	67-64-1	0.28	160
		Acetonitrile	75-05-8	5.6	NA
		Acetophenone	98-86-2	0.010	9.7
		2-Acetylaminofluorene	53-96-3	0.059	140
		Acrolein	107-02-8	0.29	NA
		Acrylonitrile	107-13-1	0.24	84
		Aldrin	309-00-2	0.021	0.066
		4-Aminobiphenyl	92-67-1	0.13	NA
		Aniline	62-53-3	0.81	14
		Anthracene	120-12-7	0.059	3.4
		Aramite	140-57-8	0.36	NA
		alpha-BHC	319-84-6	0.00014	0.066
		beta-BHC	319-85-7	0.00014	0.066
		delta-BHC	319-86-8	0.023	0.066
		gamma-BHC	58-89-9	0.0017	0.066
		Benzene	71-43-2	0.14	10
		Benz(a)anthracene	56-55-3	0.059	3.4

TREATMENT STANDARDS FOR HAZARDOUS WASTES

Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] Number	Concentration in mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
		Benzo(b)fluoranthene (difficult to distinguish from benzo(k)fluoranthene)	205-99-2	0.11	6.8
		Benzo(k)fluoranthene (difficult to distinguish from benzo(b)fluoranthene)	207-08-9	0.11	6.8
		Benzo(g,h,i)perylene	191-24-2	0.0055	1.8
		Benzo(a)pyrene	50-32-8	0.061	3.4
		Bromodichloromethane	75-27-4	0.35	15
		Methyl bromide (Bromomethane)	74-83-9	0.11	15
		4-Bromophenyl phenyl ether	101-55-3	0.055	15
		n-Butyl alcohol	71-36-3	5.6	2.6
		Butyl benzyl phthalate	85-68-7	0.017	28
		2-sec-Butyl-4,6-dinitrophenol (Dinoseb)	88-85-7	0.066	2.5
		Carbon disulfide	75-15-0	3.8	NA
		Carbon tetrachloride	56-23-5	0.057	6.0
		Chlordane (alpha and gamma isomers)	57-74-9	0.0033	0.26
		p-Chloroaniline	106-47-8	0.46	16
		Chlorobenzene	108-90-7	0.057	6.0
		Chlorobenzilate	510-15-6	0.10	NA
		2-Chloro-1,3-butadiene	126-99-8	0.057	NA
		Chlorodibromomethane	124-48-1	0.057	15
		Chloroethane	75-00-3	0.27	6.0
		bis(2-Chloroethoxy)methane	111-91-1	0.036	7.2
		bis(2-Chloroethyl)ether	111-44-4	0.033	6.0
		Chloroform	67-66-3	0.046	6.0
		bis(2-Chloroisopropyl)ether	108-60-1	0.055	7.2
		p-Chloro-m-cresol	59-50-7	0.018	14
		Chloromethane (Methyl chloride)	74-87-3	0.19	30
		2-Chloronaphthalene	91-58-7	0.055	5.6
		2-Chlorophenol	95-57-8	0.044	5.7

TREATMENT STANDARDS FOR HAZARDOUS WASTES

Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] Number	Concentration in mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
		3-Chloropropylene	107-05-1	0.036	30
		Chrysene	218-01-9	0.059	3.4
		o-Cresol	95-48-7	0.11	5.6
		m-Cresol (difficult to distinguish from p-cresol)	108-39-4	0.77	5.6
		p-Cresol (difficult to distinguish from m-cresol)	106-44-5	0.77	5.6
		Cyclohexanone	108-94-1	0.36	NA
		1,2-Dibromo-3-chloropropane	96-12-8	0.11	15
		Ethylene dibromide (1,2-Dibromoethane)	106-93-4	0.028	15
		Dibromomethane	74-95-3	0.11	15
		2,4-D (2,4-Dichlorophenoxyacetic acid)	94-75-7	0.72	10
		o,p'-DDD	53-19-0	0.023	0.087
		p,p'-DDD	72-54-8	0.023	0.087
		o,p'-DDE	3424-82-6	0.031	0.087
		p,p'-DDE	72-55-9	0.031	0.087
		o,p'-DDT	789-02-6	0.0039	0.087
		p,p'-DDT	50-29-3	0.0039	0.087
		Dibenz(a,h)anthracene	53-70-3	0.055	8.2
		Dibenz(a,e)pyrene	192-65-4	0.061	NA
		m-Dichlorobenzene	541-73-1	0.036	6.0
		o-Dichlorobenzene	95-50-1	0.088	6.0
		p-Dichlorobenzene	106-46-7	0.090	6.0
		Dichlorodifluoromethane	75-71-8	0.23	7.2
		1,1-Dichloroethane	75-34-3	0.059	6.0
		1,2-Dichloroethane	107-06-2	0.21	6.0
		1,1-Dichloroethylene	75-35-4	0.025	6.0
		trans-1,2-Dichloroethylene	156-60-5	0.054	30
		2,4-Dichlorophenol	120-83-2	0.044	14

TREATMENT STANDARDS FOR HAZARDOUS WASTES

Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] Number	Concentration in mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
		2,6-Dichlorophenol	87-65-0	0.044	14
		1,2-Dichloropropane	78-87-5	0.85	18
		cis-1,3-Dichloropropylene	10061-01-5	0.036	18
		trans-1,3-Dichloropropylene	10061-02-6	0.036	18
		Dieldrin	60-57-1	0.017	0.13
		Diethyl phthalate	84-66-2	0.20	28
		2-4-Dimethyl phenol	105-67-9	0.036	14
		Dimethyl phthalate	131-11-3	0.047	28
		Di-n-butyl phthalate	84-74-2	0.057	28
		1,4-Dinitrobenzene	100-25-4	0.32	2.3
		4,6-Dinitro-o-cresol	534-52-1	0.28	160
		2,4-Dinitrophenol	51-28-5	0.12	160
		2,4-Dinitrotoluene	121-14-2	0.32	140
		2,6-Dinitrotoluene	606-20-2	0.55	28
		Di-n-octyl phthalate	117-84-0	0.017	28
		Di-n-propylnitrosamine	621-64-7	0.40	14
		1,4-Dioxane	123-91-1	NA	170
		Diphenylamine (difficult to distinguish from diphenylnitrosamine)	122-39-4	0.92	NA
		Diphenylnitrosamine (difficult to distinguish from diphenylamine)	86-30-6	0.92	NA
		1,2-Diphenylhydrazine	122-66-7	0.087	NA
		Disulfoton	298-04-4	0.017	6.2
		Endosulfan I	939-98-8	0.023	0.066
		Endosulfan II	33213-6-5	0.029	0.13
		Endosulfan sulfate	1-31-07-8	0.029	0.13
		Endrin	72-20-8	0.0028	0.13
		Endrin aldehyde	7421-93-4	0.025	0.13
		Ethyl acetate	141-78-6	0.34	33

TREATMENT STANDARDS FOR HAZARDOUS WASTES

Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	Regulated Hazardous Constituent		Wastewaters	Nonwastewaters
		Common Name	CAS[2] Number	Concentration in mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
		Ethyl cyanide (Propanenitrile)	107-12-0	0.24	360
		Ethyl benzene	100-41-4	0.057	10
		Ethyl ether	60-29-7	0.12	160
		bis(2-Ethylhexyl) phthalate	117-81-7	0.28	28
		Ethyl methacrylate	97-63-2	0.14	160
		Ethylene oxide	75-21-8	0.12	NA
		Famphur	52-85-7	0.017	15
		Fluoranthene	206-44-0	0.068	3.4
		Fluorene	86-73-7	0.059	3.4
		Heptachlor	76-44-8	0.0012	0.066
		Heptachlor epoxide	1024-57-3	0.016	0.066
		Hexachlorobenzene	118-74-1	0.055	10
		Hexachlorobutadiene	87-68-3	0.055	5.6
		Hexachlorocyclopentadiene	77-47-4	0.057	2.4
		HxCDDs (All Hexachlorodibenzo-p-dioxins)	NA	0.000063	0.001
		HxCDFs (All Hexachlorodibenzofurans)	NA	0.000063	0.001
		Hexachloroethane	67-72-1	0.055	30
		Hexachloropropylene	1888-71-7	0.035	30
		Indeno (1,2,3-c,d) pyrene	193-39-5	0.0055	3.4
		Iodomethane	74-88-4	0.19	65
		Isobutyl alcohol	78-83-1	5.6	170
		Isodrin	465-73-6	0.021	0.066
		Isosafrole	120-58-1	0.081	2.6
		Kepone	143-50-0	0.0011	0.13
		Methacrylonitrile	126-98-7	0.24	84
		Methanol	67-56-1	5.6	NA
		Methapyrilene	91-80-5	0.081	1.5
		Methoxychlor	72-43-5	0.25	0.18

TREATMENT STANDARDS FOR HAZARDOUS WASTES

Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	Regulated Hazardous Constituent		Wastewaters	Nonwastewaters
		Common Name	CAS[2] Number	Concentration in mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
		3-Methylcholanthrene	56-49-5	0.0055	15
		4,4-Methylene bis(2-chloroaniline)	101-14-4	0.50	30
		Methylene chloride	75-09-2	0.089	30
		Methyl ethyl ketone	78-93-3	0.28	36
		Methyl isobutyl ketone	108-10-1	0.14	33
		Methyl methacrylate	80-62-6	0.14	160
		Methyl methansulfonate	66-27-3	0.018	NA
		Methyl parathion	298-00-0	0.014	4.6
		Naphthalene	91-20-3	0.059	5.6
		2-Naphthylamine	91-59-8	0.52	NA
		p-Nitroaniline	100-01-6	0.028	28
		Nitrobenzene	98-95-3	0.068	14
		5-Nitro-o-toluidine	99-55-8	0.32	28
		p-Nitrophenol	100-02-7	0.12	29
		N-Nitrosodiethylamine	55-18-5	0.40	28
		N-Nitrosodimethylamine	62-75-9	0.40	NA
		N-Nitroso-di-n-butylamine	924-16-3	0.40	17
		N-Nitrosomethylethylamine	10595-95-6	0.40	2.3
		N-Nitrosomorpholine	59-89-2	0.40	2.3
		N-Nitrosopiperidine	100-75-4	0.013	35
		N-Nitrosopyrrolidine	930-55-2	0.013	35
		Parathion	56-38-2	0.014	4.6
		Total PCBs (sum of all PCB isomers, or all Aroclors)	1336-36-3	0.10	10
		Pentachlorobenzene	608-93-5	0.055	10
		PeCDDs (All Pentachlorodibenzo-p-dioxins)	NA	0.000063	0.001
		PeCDFs (All Pentachlorodibenzofurans)	NA	0.000035	0.001
		Pentachloronitrobenzene	82-68-8	0.055	4.8
		Pentachlorophenol	87-86-5	0.089	7.4

TREATMENT STANDARDS FOR HAZARDOUS WASTES

Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	Regulated Hazardous Constituent		Wastewaters	Nonwastewaters
		Common Name	CAS[2] Number	Concentration in mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
		Phenacetin	62-44-2	0.081	16
		Phenanthrene	85-01-8	0.059	5.6
		Phenol	108-95-2	0.039	6.2
		Phorate	298-02-2	0.021	4.6
		Phthalic anhydride	85-44-9	0.055	NA
		Pronamide	23950-58-5	0.093	1.5
		Pyrene	129-00-0	0.067	8.2
		Pyridine	110-86-1	0.014	16
		Safrole	94-59-7	0.081	22
		Silvex (2,4,5-TP)	93-72-1	0.72	7.9
		2,4,5-T	93-76-5	0.72	7.9
		1,2,4,5-Tetrachlorobenzene	95-94-3	0.055	14
		TCDDs (All Tetrachlorodibenzo-p-dioxins)	NA	0.000063	0.001
		TCDFs (All Tetrachlorodibenzofurans)	NA	0.000063	0.001
		1,1,1,2 Tetrachloroethane	630-20-6	0.057	6.0
		1,1,2,2-Tetrachloroethane	79-34-6	0.057	6.0
		Tetrachloroethylene	127-18-4	0.056	6.0
		2,3,4,6-Tetrachlorophenol	58-90-2	0.030	7.4
		Toluene	108-88-3	0.080	10
		Toxaphene	8001-35-2	0.0095	2.6
		Bromoform (Tribromomethane)	75-25-2	0.63	15
		1,2,4-Trichlorobenzene	120-82-1	0.055	19
		1,1,1-Trichloroethane	71-55-6	0.054	6.0
		1,1,2-Trichloroethane	79-00-5	0.054	6.0
		Trichloroethylene	79-01-6	0.054	6.0
		Trichloromonofluoromethane	75-69-4	0.020	30
		2,4,5-Trichlorophenol	95-95-4	0.18	7.4
		2,4,6 Trichlorophenol	88-06-2	0.035	7.4

TREATMENT STANDARDS FOR HAZARDOUS WASTES

Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	Regulated Hazardous Constituent: Common Name	Regulated Hazardous Constituent: CAS[2] Number	Wastewaters: Concentration in mg/l[3]; or Technology Code[4]	Nonwastewaters: Concentration in mg/kg[5] unless noted as "mg/l TCLP", or Technology Code
		Xylenes mixed isomers (sum of o-, m-, and p-xylene concentrations)	1330-20-7	0.32	30
		Lead	7439-92-1	0.69	0.37 mg/l TCLP
K002	Wastewater treatment sludge from the production of chrome yellow and orange pigments.	Chromium (Total)	7440-47-3	2.77	0.86 mg/l TCLP
		Lead	7439-92-1	0.69	0.37 mg/l TCLP
K003	Wastewater treatment sludge from the production of molybdate orange pigments.	Chromium (Total)	7440-47-3	2.77	0.86 mg/l TCLP
		Lead	7439-92-1	0.69	0.37 mg/l TCLP
K004	Wastewater treatment sludge from the production of zinc yellow pigments.	Chromium (Total)	7440-47-3	2.77	0.86 mg/l TCLP
		Lead	7439-92-1	0.69	0.37 mg/l TCLP
K005	Wastewater treatment sludge from the production of chrome green pigments.	Chromium (Total)	7440-47-3	2.77	0.86 mg/l TCLP
		Lead	7439-92-1	0.69	0.37 mg/l TCLP
		Cyanides (Total)[7]	57-12-5	1.2	590
K006	Wastewater treatment sludge from the production of chrome oxide green pigments (anhydrous).	Chromium (Total)	7440-47-3	2.77	0.86 mg/l TCLP
		Lead	7439-92-1	0.69	0.37 mg/l TCLP
	Wastewater treatment sludge from the production of chrome oxide green pigments (hydrated).	Chromium (Total)	7440-47-3	2.77	0.86 mg/l TCLP
		Lead	7439-92-1	0.69	NA
K007	Wastewater treatment sludge from the production of iron blue pigments.	Chromium (Total)	7440-47-3	2.77	0.86 mg/l TCLP
		Lead	7439-92-1	0.69	0.37 mg/l TCLP
		Cyanides (Total)[7]	57-12-5	1.2	590
K008	Oven residue from the production of chrome oxide green pigments.	Chromium (Total)	7440-47-3	2.77	0.86 mg/l TCLP
		Lead	7439-92-1	0.69	0.37 mg/l TCLP
K009	Distillation bottoms from the production of acetaldehyde from ethylene.	Chloroform	67-66-3	0.046	6.0
K010	Distillation side cuts from the production of acetaldehyde from ethylene.	Chloroform	67-66-3	0.046	6.0
K011	Bottom stream from the wastewater stripper in the production of acrylonitrile.	Acetonitrile	75-05-8	5.6	1.8
		Acrylonitrile	107-13-1	0.24	84
		Acrylamide	79-06-1	19	23
		Benzene	71-43-2	0.14	10
		Cyanide (Total)	57-12-5	1.2	590
K013	Bottom stream from the acetonitrile column in the production of acrylonitrile.	Acetonitrile	75-05-8	5.6	1.8

Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] Number	Concentration in mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP", or Technology Code
		Acrylonitrile	107-13-1	0.24	84
		Acrylamide	79-06-1	19	23
		Benzene	71-43-2	0.14	10
		Cyanide (Total)	57-12-5	1.2	590
K014	Bottoms from the acetonitrile purification column in the production of acrylonitrile.	Acetonitrile	75-05-8	5.6	1.8
		Acrylonitrile	107-13-1	0.24	84
		Acrylamide	79-06-1	19	23
		Benzene	71-43-2	0.14	10
		Cyanide (Total)	57-12-5	1.2	590
K015	Still bottoms from the distillation of benzyl chloride.	Anthracene	120-12-7	0.059	3.4
		Benzal chloride	98-87-3	0.055	6.0
		Benzo(b)fluoranthene (difficult to distinguish from benzo(k)fluoranthene)	205-99-2	0.11	6.8
		Benzo(k)fluoranthene (difficult to distinguish from benzo(b)fluoranthene)	207-08-9	0.11	6.8
		Phenanthrene	85-01-8	0.059	5.6
		Toluene	108-88-3	0.080	10
		Chromium (Total)	7440-47-3	2.77	0.86 mg/l TCLP
		Nickel	7440-02-0	3.98	5.0 mg/l TCLP
K016	Heavy ends or distillation residues from the production of carbon tetrachloride.	Hexachlorobenzene	118-74-1	0.055	10
		Hexachlorobutadiene	87-68-3	0.055	5.6
		Hexachlorocyclopentadiene	77-47-4	0.057	2.4
		Hexachloroethane	67-72-1	0.055	30
		Tetrachloroethylene	127-18-4	0.056	6.0
K017	Heavy ends (still bottoms) from the purification column in the production of epichlorohydrin.	bis(2-Chloroethyl)ether	111-44-4	0.033	6.0
		1,2-Dichloropropane	78-87-5	0.85	18
		1,2,3-Trichloropropane	96-18-4	0.85	30
K018	Heavy ends from the fractionation column in ethyl chloride production.	Chloroethane	75-00-3	0.27	6.0
		Chloromethane	74-87-3	0.19	NA

TREATMENT STANDARDS FOR HAZARDOUS WASTES

Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	Regulated Hazardous Constituent		Wastewaters	Nonwastewaters
		Common Name	CAS[2] Number	Concentration in mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
		1,1 Dichloroethane	75-34-3	0.059	6.0
		1,2-Dichloroethane	107-06-2	0.21	6.0
		Hexachlorobenzene	118-74-1	0.055	10
		Hexachlorobutadiene	87-68-3	0.055	5.6
		Hexachloroethane	67-72-1	0.055	30
		Pentachloroethane	76-01-7	NA	6.0
		1,1,1-Trichloroethane	71-55-6	0.054	6.0
K019	Heavy ends from the distillation of ethylene dichloride in ethylene dichloride production.	bis(2-Chloroethyl)ether	111-44-4	0.033	6.0
		Chlorobenzene	108-90-7	0.057	6.0
		Chloroform	67-66-3	0.046	6.0
		p-Dichlorobenzene	106-46-7	0.090	NA
		1,2-Dichloroethane	107-06-2	0.21	6.0
		Fluorene	86-73-7	0.059	NA
		Hexachloroethane	67-72-1	0.055	30
		Naphthalene	91-20-3	0.059	5.6
		Phenanthrene	85-01-8	0.059	5.6
		1,2,4,5-Tetrachlorobenzene	95-94-3	0.055	NA
		Tetrachloroethylene	127-18-4	0.056	6.0
		1,2,4-Trichlorobenzene	120-82-1	0.055	19
		1,1,1-Trichloroethane	71-55-6	0.054	6.0
K020	Heavy ends from the distillation of vinyl chloride in vinyl chloride monomer production.	1,2-Dichloroethane	107-06-2	0.21	6.0
		1,1,2,2-Tetrachloroethane	79-34-5	0.057	6.0
		Tetrachloroethylene	127-18-4	0.056	6.0
K021	Aqueous spent antimony catalyst waste from fluoromethanes production.	Carbon tetrachloride	56-23-5	0.057	6.0
		Chloroform	67-66-3	0.046	6.0
		Antimony	7440-36-0	1.9	2.1 mg/l TCLP
K022	Distillation bottom tars from the production of phenol/acetone from cumene.	Toluene	108-88-3	0.080	10
		Acetophenone	98-86-2	0.010	9.7

TREATMENT STANDARDS FOR HAZARDOUS WASTES

Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	Regulated Hazardous Constituent		Wastewaters	Nonwastewaters
		Common Name	CAS[2] Number	Concentration in mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
		Diphenylamine (difficult to distinguish from diphenylnitrosamine)	22-39-4	0.92	13
		Diphenylnitrosamine (difficult to distinguish from diphenylamine)	86-30-6	0.92	13
		Phenol	108-95-2	0.039	6.2
		Chromium (Total)	7440-47-3	2.77	0.86 mg/l TCLP
		Nickel	7440-02-0	3.98	5.0 mg/l TCLP
K023	Distillation light ends from the production of phthalic anhydride from naphthalene.	Phthalic anhydride (measured as Phthalic acid)	100-21-0	0.055	28
		Phthalic anhydride	85-44-9	0.055	28
K024	Distillation bottoms from the production of phthalic anhydride from naphthalene.	Phthalic anhydride (measured as Phthalic acid)	100-21-0	0.055	28
		Phthalic anhydride	85-44-9	0.055	28
K025	Distillation bottoms from the production of nitrobenzene by the nitration of benzene.	NA	NA	LLEXT fb SSTRP fb CARBN; or INCIN	INCIN
K026	Stripping still tails from the production of methyl ethyl pyridines.	NA	NA	INCIN	INCIN
K027	Centrifuge and distillation residues from toluene diisocyanate production.	NA	NA	CARBN; or INCIN	CMBST
K028	Spent catalyst from the hydrochlorinator reactor in the production of 1,1,1-trichloroethane.	1,1-Dichloroethane	75-34-3	0.059	6.0
		trans-1,2-Dichloroethylene	156-60-5	0.054	30
		Hexachlorobutadiene	87-68-3	0.055	5.6
		Hexachloroethane	67-72-1	0.055	30
		Pentachloroethane	76-01-7	NA	6.0
		1,1,1,2-Tetrachloroethane	630-20-6	0.057	6.0
		1,1,2,2-Tetrachloroethane	79-34-5	0.057	6.0
		Tetrachloroethylene	127-18-4	0.056	6.0
		1,1,1-Trichloroethane	71-55-6	0.054	6.0
		1,1,2-Trichloroethane	79-00-5	0.054	6.0
		Cadmium	7440-43-9	0.69	NA
		Chromium (Total)	7440-47-3	2.77	0.86 mg/l TCLP
		Lead	7439-92-1	0.69	0.37 mg/l TCLP
		Nickel	7440-02-0	3.98	5.0 mg/l TCLP

TREATMENT STANDARDS FOR HAZARDOUS WASTES

Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	Regulated Hazardous Constituent		Wastewaters	Nonwastewaters
		Common Name	CAS[2] Number	Concentration in mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
K029	Waste from the product steam stripper in the production of 1,1,1-trichloroethane.	Chloroform	67-66-3	0.046	6.0
		1,2 Dichloroethane	107-06-2	0.21	6.0
		1,1 Dichloroethylene	75-35-4	0.025	6.0
		1,1,1-Trichloroethane	71-55-6	0.054	6.0
		Vinyl chloride	75-01-4	0.27	6.0
K030	Column bodies or heavy ends from the combined production of trichloroethylene and perchloroethylene.	o-Dichlorobenzene	95-50-1	0.088	NA
		p-Dichlorobenzene	106-46-7	0.090	NA
		Hexachlorobutadiene	87-68-3	0.055	5.6
		Hexachloroethane	67-72-1	0.055	30
		Hexachloropropylene	1888-71-7	NA	30
		Pentachlorobenzene	608-93-5	NA	10
		Pentachloroethane	76-01-7	NA	6.0
		1,2,4,5-Tetrachlorobenzene	95-94-3	0.055	14
		Tetrachloroethylene	127-18-4	0.056	6.0
		1,2,4-Trichlorobenzene	120-82-1	0.055	19
K031	By-product salts generated in the production of MSMA and cacodylic acid.	Arsenic	7440-38-2	1.4	5.0 mg/l TCLP
K032	Wastewater treatment sludge from the production of chlordane.	Hexachlorocyclopentadiene	77-47-4	0.057	2.4
		Chlordane (alpha and gamma isomers)	57-74-9	0.0033	0.26
		Heptachlor	76-44-8	0.0012	0.066
		Heptachlor epoxide	1024-57-3	0.016	0.066
K033	Wastewater and scrub water from the chlorination of cyclopentadiene in the production of chlordane.	Hexachlorocyclopentadiene	77-47-4	0.057	2.4
K034	Filter solids from the filtration of hexachlorocyclopentadiene in the production of chlordane.	Hexachlorocyclopentadiene	77-47-4	0.057	2.4
K035	Wastewater treatment sludges generated in the production of creosote.	Acenaphthene	83-32-9	NA	3.4
		Anthracene	120-12-7	NA	3.4
		Benz(a)anthracene	56-55-3	0.059	3.4
		Benzo(a)pyrene	50-32-8	0.061	3.4
		Chrysene	218-01-9	0.059	3.4

TREATMENT STANDARDS FOR HAZARDOUS WASTES

Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] Number	Concentration in mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
		o-Cresol	95-48-7	0.11	5.6
		m-Cresol (difficult to distinguish from p-cresol)	108-39-4	0.77	5.6
		p-Cresol (difficult to distinguish from m-cresol)	106-44-5	0.77	5.6
		Dibenz(a,h)anthracene	53-70-3	NA	8.2
		Fluoranthene	206-44-0	0.068	3.4
		Fluorene	86-73-7	NA	3.4
		Indeno(1,2,3-cd)pyrene	193-39-5	NA	3.4
		Naphthalene	91-20-3	0.059	5.6
		Phenanthrene	85-01-8	0.059	5.6
		Phenol	108-95-2	0.039	6.2
		Pyrene	129-00-0	0.067	8.2
K036	Still bottoms from toluene reclamation distillation in the production of disulfoton.	Disulfoton	298-04-4	0.017	6.2
K037	Wastewater treatment sludges from the production of disulfoton.	Disulfoton	298-04-4	0.017	6.2
		Toluene	108-88-3	0.080	10
K038	Wastewater from the washing and stripping of phorate production.	Phorate	298-02-2	0.021	4.6
K039	Filter cake from the filtration of diethylphosphorodithioic acid in the production of phorate.	NA	NA	CARBN; or INCIN	CMBST
K040	Wastewater treatment sludge from the production of phorate.	Phorate	298-02-2	0.021	4.6
K041	Wastewater treatment sludge from the production of toxaphene.	Toxaphene	8001-35-2	0.0095	2.6
K042	Heavy ends or distillation residues from the distillation of tetrachlorobenzene in the production of 2,4,5-T.	o-Dichlorobenzene	95-50-1	0.088	6.0
		p-Dichlorobenzene	106-46-7	0.090	6.0
		Pentachlorobenzene	608-93-5	0.055	10
		1,2,4,5-Tetrachlorobenzene	95-94-3	0.055	14
		1,2,4-Trichlorobenzene	120-82-1	0.055	19
K043	2,6-Dichlorophenol waste from the production of 2,4-D.	2,4-Dichlorophenol	120-83-2	0.044	14
		2,6-Dichlorophenol	87-65-0	0.044	14
		2,4,5-Trichlorophenol	95-95-4	0.18	7.4

TREATMENT STANDARDS FOR HAZARDOUS WASTES

Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] Number	Concentration in mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
		2,4,6-Trichlorophenol	88-06-2	0.035	7.4
		2,3,4,6-Tetrachlorophenol	58-90-2	0.030	7.4
		Pentachlorophenol	87-86-5	0.089	7.4
		Tetrachloroethylene	79-01-6	0.056	6.0
		HxCDDs (All Hexachlorodibenzo-p-dioxins)	NA	0.000063	0.001
		HxCDFs (All Hexachlorodibenzofurans)	NA	0.000063	0.001
		PeCDDs (All Pentachlorodibenzo-p-dioxins)	NA	0.000063	0.001
		PeCDFs (All Pentachlorodibenzofurans)	NA	0.000035	0.001
		TCDDs (All Tetrachlorodibenzo-p-dioxins)	NA	0.000063	0.001
		TCDFs (All Tetrachlorodibenzofurans)	NA	0.000063	0.001
K044	Wastewater treatment sludges from the manufacturing and processing of explosives.	NA	NA	DEACT	DEACT
K045	Spent carbon from the treatment of wastewater containing explosives.	NA	NA	DEACT	DEACT
K046	Wastewater treatment sludges from the manufacturing, formulation and loading of lead-based initiating compounds.	Lead	7439-92-1	0.69	0.37 mg/l TCLP
K047	Pinkhed water form TNT operations	NA	NA	DEACT	DEACT
K048	Dissolved air flotation (DAF) float from the petroleum refining industry.	Benzene	71-43-2	0.14	10
		Benzo(a)pyrene	50-32-8	0.061	3.4
		bis(2-Ethylhexyl) phthalate	117-81-7	0.28	28
		Chrysene	218-01-9	0.059	3.4
		Di-n-butyl phthalate	84-74-2	0.057	28
		Ethylbenzene	100-41-4	0.057	10
		Fluorene	86-73-7	0.059	NA
		Naphthalene	91-20-3	0.059	5.6
		Phenanthrene	85-01-8	0.059	5.6
		Phenol	108-95-2	0.039	6.2
		Pyrene	129-00-0	0.067	8.2
		Toluene	108-88-3	0.080	10
		Xylenes-mixed isomers (sum of o-, m-, and p-xylene concentrations)	1330-20-7	0.32	30

TREATMENT STANDARDS FOR HAZARDOUS WASTES

Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	Regulated Hazardous Constituent		Wastewaters	Nonwastewaters
		Common Name	CAS[2] Number	Concentration in mg/l[3], or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP", or Technology Code
		Chromium (Total)	7440-47-3	2.77	0.88 mg/l TCLP
		Cyanides (Total)[7]	57-12-5	1.2	590
		Lead	7439-92-1	0.69	NA
		Nickel	7440-02-0	NA	5.0 mg/l TCLP
K049	Slop oil emulsion solids from the petroleum refining industry.	Anthracene	120-12-7	0.059	3.4
		Benzene	71-43-2	0.14	10
		Benzo(a)pyrene	50-32-8	0.061	3.4
		bis(2-Ethylhexyl) phthalate	117-81-7	0.28	28
		Carbon disulfide	75-15-0	3.8	NA
		Chrysene	2218-01-9	0.059	3.4
		2,4-Dimethylphenol	105-67-9	0.036	NA
		Ethylbenzene	100-41-4	0.057	10
		Naphthalene	91-20-3	0.059	5.6
		Phenanthrene	85-01-8	0.059	5.6
		Phenol	108-95-2	0.039	6.2
		Pyrene	129-00-0	0.067	8.2
		Toluene	108-88-3	0.080	10
		Xylenes-mixed isomers[7] (sum of o-, m-, and p-xylene concentrations)	1330-20-7	0.32	30
		Cyanides (Total)[7]	57-12-5	1.2	590
		Chromium (Total)	7440-47-3	2.77	0.88 mg/l TCLP
		Lead	7439-92-1	0.69	NA
		Nickel	7440-02-0	NA	5.0 mg/l TCLP
K050	Heat exchanger bundle cleaning sludge from the petroleum refining industry.	Benzo(a)pyrene	50-32-8	0.061	3.4
		Phenol	108-95-2	0.039	6.2
		Cyanides (Total)[7]	57-12-5	1.2	590
		Chromium (Total)	7440-47-3	2.77	0.86 mg/l TCLP
		Lead	7439-92-1	0.69	NA
		Nickel	7440-02-0	NA	5.0 mg/l TCLP

TREATMENT STANDARDS FOR HAZARDOUS WASTES

Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	Regulated Hazardous Constituent		Wastewaters	Nonwastewaters
		Common Name	CAS[2] Number	Concentration in mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
K051	API separator sludge from the petroleum refining industry.	Acenaphthene	83-32-9	0.059	NA
		Anthracene	120-12-7	0.059	3.4
		Benz(a)anthracene	56-55-3	0.059	3.4
		Benzene	71-43-2	0.14	10
		Benzo(a)pyrene	50-32-8	0.061	3.4
		bis(2-Ethylhexyl) phthalate	117-81-7	0.28	28
		Chrysene	2218-01-9	0.059	3.4
		Di-n-butyl phthalate	105-67-9	0.057	28
		Ethylbenzene	100-41-4	0.057	10
		Fluorene	86-73-7	0.059	NA
		Naphthalene	91-20-3	0.059	5.6
		Phenanthrene	85-01-8	0.059	5.6
		Phenol	108-95-2	0.039	6.2
		Pyrene	129-00-0	0.067	8.2
		Toluene	108-88-3	0.08	10
		Xylenes-mixed isomers (sum of o-, m-, and p-xylene concentrations)	1330-20-7	0.32	30
		Cyanides (Total)[7]	57-12-5	1.2	590
		Chromium (Total)	7440-47-3	2.77	0.86 mg/l TCLP
		Lead	7439-92-1	0.69	NA
		Nickel	7440-02-0	NA	5.0 mg/l TCLP
K052	Tank bottoms (leaded) from the petroleum refining industry.	Benzene	71-43-2	0.14	10
		Benzo(a)pyrene	50-32-8	0.061	3.4
		o-Cresol	95-48-7	0.11	5.6
		m-Cresol (difficult to distinguish from p-cresol)	108-39-4	0.77	5.6
		p-Cresol (difficult to distinguish from m-cresol)	106-44-5	0.77	5.6
		2,4-Dimethylphenol	105-67-9	0.036	NA
		Ethylbenzene	100-41-4	0.057	10

TREATMENT STANDARDS FOR HAZARDOUS WASTES

Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] Number	Concentration in mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
		Naphthalene	91-20-3	0.059	5.6
		Phenanthrene	85-01-8	0.059	5.6
		Phenol	108-95-2	0.039	6.2
		Toluene	108-88-3	0.08	10
		Xylenes-mixed isomers (sum of o-, m-, and p-xylene concentrations)	1330-20-7	0.32	30
		Chromium (Total)	7440-47-3	2.77	0.86 mg/l TCLP
		Cyanides (Total)[7]	57-12-5	1.2	590
		Lead	7439-92-1	0.69	NA
		Nickel	7440-02-0	NA	5.0 mg/l TCLP
K060	Ammonia still lime sludge from coking operations.	Benzene	71-43-2	0.14	10
		Benz(a)pyrene	50-32-8	0.061	3.4
		Naphthalene	91-20-3	0.059	5.6
		Phenol	108-95-2	0.039	6.2
		Cyanides (Total)[7]	57-12-5	1.2	590
K061	Emission control dust/sludge from the primary production of steel in electric furnaces.	Antimony	7440-36-0	NA	2.1 mg/l TCLP
		Arsenic	7440-38-2	NA	5.0 mg/l TCLP
		Barium	7440-39-3	NA	7.6 mg/l TCLP
		Beryllium	7440-41-7	NA	0.014 mg/l TCLP
		Cadmium	7440-43-9	0.69	0.19 mg/l TCLP
		Chromium (Total)	7440-47-3	2.77	0.86 mg/l TCLP
		Lead	7439-92-1	0.69	0.37 mg/l TCLP
		Mercury	7439-97-6	NA	0.025 mg/l TCLP
		Nickel	7440-02-0	3.98	5.0 mg/l TCLP
		Selenium	7782-49-2	NA	0.16 mg/l TCLP
		Silver	7440-22-4	NA	0.30 mg/l TCLP
		Thallium	NA	NA	0.078 mg/l TCLP
		Zinc	7440-66-6	NA	5.3 mg/l TCLP

TREATMENT STANDARDS FOR HAZARDOUS WASTES

Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	Regulated Hazardous Constituent		Wastewaters	Nonwastewaters
		Common Name	CAS[2] Number	Concentration in mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
		Chlorobenzene	108-90-7	0.057	6.0
		m-Dichlorobenzene	541-73-1	0.036	6.0
		o-Dichlorobenzene	95-50-1	0.088	6.0
		p-Dichlorobenzene	106-46-7	0.090	6.0
		Hexachlorobenzene	118-74-1	0.055	10
		Total PCBs (sum of all PCB isomers, or all Aroclors)	1336-36-3	0.10	10
		Pentachlorobenzene	608-93-5	0.055	10
		1,2,4,5-Tetrachlorobenzene	95-94-3	0.055	14
		1,2,4-Trichlorobenzene	120-82-1	0.055	19
K086	Solvent wastes and sludges, caustic washes and sludges, or water washes and sludges from cleaning tubs and equipment used in the formulation of ink from pigments, driers, soaps, and stabilizers containing chromium and lead.	Acetone	67-64-1	0.28	160
		Acetophenone	98-86-2	0.010	9.7
		bis(2-Ethylhexyl) phthalate	117-81-7	0.28	28
		n-Butyl alcohol	71-36-3	5.6	2.6
		Butylbenzyl phthalate	85-68-7	0.017	28
		Cyclohexanone	108-94-1	0.36	NA
		o-Dichlorobenzene	95-50-1	0.088	6.0
		Diethyl phthalate	84-66-2	0.20	28
		Dimethyl phthalate	131-11-3	0.047	28
		Di-n-butyl phthalate	84-74-2	0.057	28
		Di-n-octyl phthalate	117-84-0	0.017	28
		Ethyl acetate	141-78-6	0.34	33
		Ethylbenzene	100-41-4	0.057	10
		Methanol	67-56-1	5.6	NA
		Methyl ethyl ketone	78-93-3	0.28	36
		Methyl isobutyl ketone	108-10-1	0.14	33
		Methylene chloride	75-09-2	0.089	30
		Naphthalene	91-20-3	0.059	5.6
		Nitrobenzene	98-95-3	0.068	14

TREATMENT STANDARDS FOR HAZARDOUS WASTES

Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	Regulated Hazardous Constituent		Wastewaters	Nonwastewaters
		Common Name	CAS[2] Number	Concentration in mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
		Toluene	108-88-3	0.080	10
		1,1,1-Trichloroethane	71-55-6	0.054	6.0
		Trichloroethylene	79-01-6	0.054	6.0
		Xylenes-mixed isomers (sum of o-, m-, and p-xylene concentrations)	1330-20-7	0.32	30
		Chromium (Total)	7440-47-3	2.77	0.88 mg/l TCLP
		Cyanides (Total)[7]	57-12-5	1.2	590
		Lead	7439-92-1	0.69	0.37 mg/l TCLP
K087	Decanter tank tar sludge from coking operations.	Acenaphthylene	208-96-8	0.059	3.4
		Benzene	71-43-2	0.14	10
		Chrysene	218-01-9	0.059	3.4
		Fluoranthene	206-44-0	0.068	3.4
		Indeno(1,2,3-cd)pyrene	193-39-5	0.0055	3.4
		Naphthalene	91-20-3	0.059	5.6
		Phenanthrene	85-01-8	0.059	5.6
		Toluene	108-88-3	0.080	10
		Xylenes-mixed isomers (sum of o-, m-, and p-xylene concentrations)	1330-20-7	0.32	30
		Lead	7439-92-1	0.69	0.37 mg/l TCLP
K093	Distillation light ends from the production of phthalic anhydride from ortho-xylene.	Phthalic anhydride (measured as Phthalic acid)	100-21-0	0.055	28
		Phthalic anhydride	85-44-9	0.055	28
K094	Distillation bottoms from the production of phthalic anhydride from ortho-xylene.	Phthalic anhydride (measured as Phthalic acid)	100-21-0	0.055	28
		Phthalic anhydride	85-44-9	0.055	28
K095	Distillation bottoms from the production of 1,1,1-trichloroethane.	Hexachloroethane	67-72-1	0.055	30
		Pentachloroethane	76-01-7	0.055	6.0
		1,1,1,2-Tetrachloroethane	630-20-6	0.057	6.0
		1,1,2,2-Tetrachloroethane	79-34-5	0.057	6.0
		Tetrachloroethylene	127-18-4	0.056	6.0

TREATMENT STANDARDS FOR HAZARDOUS WASTES

Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	Regulated Hazardous Constituent: Common Name	Regulated Hazardous Constituent: CAS[2] Number	Wastewaters: Concentration in mg/l[3]; or Technology Code[4]	Nonwastewaters: Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
		1,1,2 Trichloroethane	79 00 5	0 054	6 0
K096	Heavy ends from the heavy ends column from the production of 1,1,1-trichloroethane.	Trichloroethylene	79 01 6	0 054	6 0
		m Dichlorobenzene	541-73-1	0.036	6 0
		Pentachloroethane	76 01-7	0.055	6 0
		1,1,1,2-Tetrachloroethane	630-20-6	0 057	6.0
		1,1,2,2-Tetrachloroethane	79-34 5	0.057	6 0
		Tetrachloroethylene	127-18-4	0 056	6 0
		1,2,4-Trichlorobenzene	120-82-1	0 055	19
		1,1,2-Trichloroethane	79-00-5	0.054	6 0
		Trichloroethylene	79 01-6	0 054	6 0
K097	Vacuum stripper discharge from the chlordane chlorinator in the production of chlordane.	Chlordane (alpha and gamma isomers)	57-74 9	0 0033	0 26
		Heptachlor	76-44 8	0.0012	0 066
		Heptachlor epoxide	1024-57-3	0 016	0.066
		Hexachlorocyclopentadiene	77-47-4	0.057	2.4
K098	Untreated process wastewater from the production of toxaphene.	Toxaphene	8001-35-2	0.0095	2 6
K099	Untreated wastewater from the production of 2,4-D.	2,4-Dichlorophenoxyacetic acid	94-75-7	0.72	10
		HxCDDs (All Hexachlorodibenzo-p-dioxins)	NA	0.000063	0 001
		HxCDFs (All Hexachlorodibenzofurans)	NA	0.000063	0 001
		PeCDDs (All Pentachlorodibenzo-p-dioxins)	NA	0.000063	0 001
		PeCDFs (All Pentachlorodibenzofurans)	NA	0.000035	0 001
		TCDDs (All Tetrachlorodibenzo-p-dioxins)	NA	0.000063	0.001
		TCDFs (All Tetrachlorodibenzofurans)	NA	0 000063	0 001
K100	Waste leaching solution from acid leaching of emission control dust/sludge from secondary lead smelting.	Cadmium	7440-43-9	0.69	0.19 mg/l TCLP
		Chromium (Total)	7440-47-3	2.77	0 86 mg/l TCLP
		Lead	7439 92-1	0 69	0.37 mg/l TCLP
K101	Distillation tar residues from the distillation of aniline-based compounds in the production of veterinary pharmaceuticals from arsenic or organo-arsenic compounds.	o-Nitroaniline	88-74-4	0.27	14
		Arsenic	7440-38-2	1 4	5 0 mg/l TCLP
		Cadmium	7440 43 9	0 69	NA

TREATMENT STANDARDS FOR HAZARDOUS WASTES

Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] Number	Concentration in mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP", or Technology Code
		Lead	7439-92-1	0.69	NA
		Mercury	7439-97-6	0.15	NA
K102	Residue from the use of activated carbon f·· decolorization in the production of veterinary pharmaceuticals from arseni· ·c organo-arsenic compounds.	o-Nitrophenol	88-75-5	0.028	13
		Arsenic	7440-38-2	1.4	5.0 mg/l TCLP
		Cadmium	7440-43-9	0.69	NA
		Lead	7439-92-1	0.69	NA
		Mercury	7439-97-6	0.15	NA
K103	Process residues from aniline extraction from the production of aniline.	Aniline	62-53-3	0.81	14
		Benzene	71-43-2	0.14	10
		2,4-Dinitrophenol	51-28-5	0.12	160
		Nitrobenzene	98-95-3	0.068	14
		Phenol	108-95-2	0.039	6.2
K104	Combined wastewater streams generated from nitrobenzene/ aniline production.	Aniline	62-53-3	0.81	14
		Benzene	71-43-2	0.14	10
		2,4-Dinitrophenol	51-28-5	0.12	160
		Nitrobenzene	98-95-3	0.068	14
		Phenol	108-95-2	0.039	6.2
		Cyanides (Total)[7]	57-12-5	1.2	590
K105	Separated aqueous stream from the reactor product washing step in the production of chlorobenzenes.	Benzene	71-43-2	0.14	10
		Chlorobenzene	108-90-7	0.057	6.0
		2-Chlorophenol	95-57-8	0.044	5.7
		o-Dichlorobenzene	95-50-1	0.088	6.0
		p-Dichlorobenzene	106-46-7	0.090	6.0
		Phenol	108-95-2	0.039	6.2
		2,4,5-Trichlorophenol	95-95-4	0.18	7.4
		2,4,6-Trichlorophenol	88-06-2	0.035	7.4
K106	K106 (wastewater treatment sludge from the mercury cell process in chlorine production) nonwastewaters that contain greater than or equal to 260 mg/kg total mercury.	Mercury	7439-97-6	NA	RMERC

TREATMENT STANDARDS FOR HAZARDOUS WASTES

Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] Number	Concentration in mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
	K106 (wastewater treatment sludge from the mercury cell process in chlorine production) nonwastewaters that contain less than 260 mg/kg total mercury that are residues from RMERC.	Mercury	7439-97-6	NA	0.20 mg/l TCLP
	Other K106 nonwastewaters that contain less than 260 mg/kg total mercury and are not residues from RMERC.	Mercury	7439-97-6	NA	0.025 mg/l TCLP
	All K106 wastewaters.	Mercury	7439-97-6	0.15	NA
K107	Column bottoms from product separation from the production of 1,1-dimethylhydrazine (UDMH) from carboxylic acid hydrazides.	NA	NA	INCIN; or CHOXD fb CARBN; or BIODG fb CARBN	INCIN
K108	Condensed column overheads from product separation and condensed reactor vent gases from the production of 1,1-dimethylhydrazine (UDMH) from carboxylic acid hydrazides.	NA	NA	INCIN; or CHOXD fb CARBN; or BIODG fb CARBN	INCIN
K109	Spent filter cartridges from product purification from the production of 1,1-dimethylhydrazine (UDMH) from carboxylic acid hydrazides.	NA	NA	INCIN; or CHOXD fb CARBN; or BIODG fb CARBN	INCIN
K110	Condensed column overheads from intermediate separation from the production of 1,1-dimethylhydrazine (UDMH) from carboxylic acid hydrazides.	NA	NA	INCIN; or CHOXD fb CARBN; or BIODG fb CARBN	INCIN
K111	Product washwaters from the production of dinitrotoluene via nitration of toluene	2,4-Dinitrotoluene	121-1-2	0.32	140
		2,6-Dinitrotoluene	606-20-2	0.55	28
K112	Reaction by-product water from the drying column in the production of toluenediamine via hydrogenation of dinitrotoluene.	NA	NA	INCIN; or CHOXD fb CARBN; or BIODG fb CARBN	INCIN
K113	Condensed liquid light ends from the purification of toluenediamine in the production of toluenediamine via hydrogenation of dinitrotoluene.	NA	NA	CARBN; OR INCIN	CMBST
K114	Vicinals from the purification of toluenediamine in the production of toluenediamine via hydrogenation of dinitrotolune.	NA	NA	CARBN; or INCIN	CMBST
K115	Heavy ends from the purification of toluenediamine in the production of toluenediamine via hydrogenation of dinitrotoluene.	Nickel	7440-02-0	3.98	5.0 mg/l TCLP
		NA	NA	CARBN; or INCIN	CMBST
K116	Organic condensate from the solvent recovery column in the production of toluene diisocyanate via phosgenation of toluenediamine.	NA	NA	CARBN, or INCIN	CMBST
K117	Wastewater from the reactor vent gas scrubber in the production of ethylene dibromide via bromination of ethene.	Methyl bromide (Bromomethane)	74-83-9	0.11	15
		Chloroform	67-66-3	0.046	6.0
		Ethylene dibromide (1,2-Dibromoethane)	106-93-4	0.028	15
K118	Spent absorbent solids from purification of ethylene dibromide in the production of ethylene dibromide via bromination of ethene.	Methyl bromide (Bromomethane)	74-83-9	0.11	15
		Chloroform	67-66-3	0.046	6.0
		Ethylene dibromide (1,2-Dibromoethane)	106-93-4	0.028	15

TREATMENT STANDARDS FOR HAZARDOUS WASTES

Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] Number	Concentration in mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
K123	Process wastewater (including supernates, filtrates, and washwaters) from the production of ethylenebisdithiocarbamic acid and its salts	NA	NA	INCIN; or CHOXD fb (BIODG or CARBN)	INCIN
K124	Reactor vent scrubber water from the production of ethylenebisdithiocarbamic acid and its salts.	NA	NA	INCIN; or CHOXD fb (BIODG or CARBN)	INCIN
K125	Filtration, evaporation, and centrifugation solids from the production of ethylenebisdithiocarbamic acid and its salts.	NA	NA	INCIN; or CHOXD fb (BIODG or CARBN)	INCIN
K126	Baghouse dust and floor sweepings in milling and packaging operations from the production or formulation of ethylenebisdithiocarbamic acid and its salts.	NA	NA	INCIN; or CHOXD fb (BIODG or CARBN)	INCIN
K131	Wastewater from the reactor and spent sulfuric acid from the acid dryer from the production of methyl bromide.	Methyl bromide (Bromomethane)	74-83-9	0.11	15
K132	Spent absorbent and wastewater separator solids from the production of methyl bromide.	Methyl bromide (Bromomethane)	74-83-9	0.11	15
K136	Still bottoms from the purification of ethylene dibromide in the production of ethylene dibromide via bromination of ethene.	Methyl bromide (Bromomethane)	74-83-9	0.11	15
		Chloroform	67-66-3	0.046	6.0
		Ethylene dibromide (1,2-Dibromoethane)	106-93-4	0.028	15
K141	Process residues from the recovery of coal tar, including, but not limited to, collecting sump residues from the production of coke or the recovery of coke by-products produced from coal. This listing does not include K087 (decanter tank tar sludge from coking operations).	Benzene	71-43-2	0.14	10
		Benz(a)anthracene	56-55-3	0.059	3.4
		Benzo(a)pyrene	50-32-8	0.061	3.4
		Benzo(b)fluoranthene (difficult to distinguish from benzo(k)fluoranthene)	205-99-2	0.11	6.8
		Benzo(k)fluoranthene (difficult to distinguish from benzo(b)fluoranthene)	207-08-9	0.11	6.8
		Chrysene	218-01-9	0.059	3.4
		Dibenz(a,h)anthracene	53-70-3	0.055	8.2
		Indeno(1,2,3-cd)pyrene	193-39-5	0.0055	3.4
K142	Tar storage tank residues from the production of coke from coal or from the recovery of coke by-products produced from coal.	Benzene	71-43-2	0.14	10
		Benz(a)anthracene	56-55-3	0.059	3.4
		Benzo(a)pyrene	50-32-8	0.061	3.4
		Benzo(b)fluoranthene (difficult to distinguish from benzo(k)fluoranthene)	205-99-2	0.11	6.8
		Benzo(k)fluoranthene (difficult to distinguish from benzo(b)fluoranthene)	207-08-9	0.11	6.8
		Chrysene	218-01-9	0.059	3.4

TREATMENT STANDARDS FOR HAZARDOUS WASTES

Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	Regulated Hazardous Constituent		Wastewaters	Nonwastewaters
		Common Name	CAS[2] Number	Concentration in mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
		Dibenz(a,h)anthracene	53-70-3	0.055	8.2
		Indeno(1,2,3-cd)pyrene	193-39-5	0.0055	3.4
K143	Process residues from the recovery of light oil, including, but not limited to, those generated in stills, decanters, and wash oil recovery units from the recovery of coke by-products produced from coal.	Benzene	71-43-2	0.14	10
		Benz(a)anthracene	56-55-3	0.059	3.4
		Benzo(a)pyrene	50-32-8	0.061	3.4
		Benzo(b)fluoranthene (difficult to distinguish from benzo(k)fluoranthene)	205-99-2	0.11	6.8
		Benzo(k)fluoranthene (difficult to distinguish from benzo(b)fluoranthene)	207-08-9	0.11	6.8
		Chrysene	218-01-9	0.059	3.4
K144	Wastewater sump residues from light oil refining, including, but not limited to, intercepting or contamination sump sludges from the recovery of coke by-products produced from coal.	Benzene	71-43-2	0.14	10
		Benz(a)anthracene	56-55-3	0.059	3.4
		Benzo(a)pyrene	50-32-8	0.061	3.4
		Benzo(b)fluoranthene (difficult to distinguish from benzo(k)fluoranthene)	205-99-2	0.11	6.8
		Benzo(k)fluoranthene (difficult to distinguish from benzo(b)fluoranthene)	207-08-9	0.11	6.8
		Chrysene	218-01-9	0.059	3.4
		Dibenz(a,h)anthracene	53-70-3	0.055	8.2
K145	Residues from naphthalene collection and recovery operations from the recovery of coke by-products produced from coal.	Benzene	71-43-2	0.14	10
		Benz(a)anthracene	56-55-3	0.059	3.4
		Benzo(a)pyrene	50-32-8	0.061	3.4
		Chrysene	218-01-9	0.059	3.4
		Dibenz(a,h)anthracene	53-70-3	0.055	8.2
		Naphthalene	91-20-3	0.059	5.6
K147	Tar storage tank residues from coal tar refining.	Benzene	71-43-2	0.14	10
		Benz(a)anthracene	56-55-3	0.059	3.4
		Benzo(a)pyrene	50-32-8	0.061	3.4
		Benzo(b)fluoranthene (difficult to distinguish from benzo(k)fluoranthene)	205-99-2	0.11	6.8

TREATMENT STANDARDS FOR HAZARDOUS WASTES

Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	Regulated Hazardous Constituent		Wastewaters	Nonwastewaters
		Common Name	CAS[2] Number	Concentration in mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
		Benzo(k)fluoranthene (difficult to distinguish from benzo(b)fluoranthene)	207-08-9	0.11	6.8
		Chrysene	218-01-9	0.059	3.4
		Dibenz(a,h)anthracene	53-70-3	0.055	8.2
		Indeno(1,2,3-cd)pyrene	193-39-5	0.0055	3.4
K148	Residues from coal tar distillation, including, but not limited to, still bottoms.	Benz(a)anthracene	56-55-3	0.059	3.4
		Benzo(a)pyrene	50-32-8	0.061	3.4
		Benzo(b)fluoranthene (difficult to distinguish from benzo(k)fluoranthene)	205-99-2	0.11	6.8
		Benzo(k)fluoranthene (difficult to distinguish from benzo(b)fluoranthene)	207-08-9	0.11	6.8
		Chrysene	218-01-9	0.059	3.4
		Dibenz(a,h)anthracene	53-70-3	0.055	8.2
		Indeno(1,2,3-cd)pyrene	193-39-5	0.0055	3.4
K149	Distillation bottoms from the production of alpha- (or methyl-) chlorinated toluenes, ring-chlorinated toluenes, benzoyl chlorides, and compounds with mixtures of these functional groups. (This waste does not include still bottoms from the distillation of benzyl chloride.)	Chlorobenzene	108-90-7	0.057	6.0
		Chloroform	67-66-3	0.046	6.0
		Chloromethane	74-87-3	0.19	30
		p-Dichlorobenzene	106-46-7	0.090	6.0
		Hexachlorobenzene	118-74-1	0.055	10
		Pentachlorobenzene	608-93-5	0.055	10
		1,2,4,5-Tetrachlorobenzene	95-94-3	0.055	14
		Toluene	108-88-3	0.080	10
K150	Organic residuals, excluding spent carbon adsorbent, from the spent chlorine gas and hydrochloric acid recovery processes associated with the production of alpha- (or methyl-) chlorinated toluenes, ring-chlorinated toluenes, benzoyl chlorides, and compounds with mixtures of these functional groups.	Carbon tetrachloride	56-23-5	0.057	6.0
		Chloroform	67-66-3	0.046	6.0
		Chloromethane	74-87-3	0.19	30
		p-Dichlorobenzene	106-46-7	0.090	6.0
		Hexachlorobenzene	118-74-1	0.055	10
		Pentachlorobenzene	608-93-5	0.055	10
		1,2,4,5-Tetrachlorobenzene	95-94-3	0.055	14
		1,1,2,2-Tetrachloroethane	79-34-5	0.057	6.0

TREATMENT STANDARDS FOR HAZARDOUS WASTES

Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] Number	Concentration in mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
		Tetrachloroethylene	127-18-4	0.056	6.0
		1,2,4-Trichlorobenzene	120-82-1	0.055	19
K151	Wastewater treatment sludges, excluding neutralization and biological sludges, generated during the treatment of wastewaters from the production of alpha- (or methyl-) chlorinated toluenes, ring-chlorinated toluenes, benzoyl chlorides, and compounds with mixtures of these functional groups.	Benzene	71-43-2	0.14	10
		Carbon tetrachloride	56-23-5	0.057	6.0
		Chloroform	67-66-3	0.046	6.0
		Hexachlorobenzene	118-74-1	0.055	10
		Pentachlorobenzene	608-93-5	0.055	10
		1,2,4,5-Tetrachlorobenzene	95-94-3	0.055	14
		Tetrachloroethylene	127-18-4	0.056	6.0
		Toluene	108-88-3	0.080	10
P001	Warfarin, & salts, when present at concentrations greater than 0.3%	Warfarin	81-81-2	(WETOX or CHOXD) fb CARBN; or INCIN	CMBST
P002	1-Acetyl-2-thiourea	1-Acetyl-2-thiourea	591-08-2	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
P003	Acrolein	Acrolein	107-02-8	0.29	CMBST
P004	Aldrin	Aldrin	309-00-2	0.021	0.066
P005	Allyl alcohol	Allyl alcohol	107-18-6	(WETOX or CHOXD) fb CARBN; or INCIN	CMBST
P006	Aluminum phosphide	Aluminum phosphide	20859-73-8	CHOXD; CHRED; or INCIN	CHOXD; CHRED, or INCIN
P007	5-Aminomethyl 3-isoxazolol	5-Aminomethyl 3-isoxazolol	2763-96-4	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
P008	4-Aminopyridine	4-Aminopyridine	504-24-5	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
P009	Ammonium picrate	Ammonium picrate	131-74-8	CHOXD; CHRED; CARBN; BIODG; or INCIN	CHOXD; CHRED, or CMBST
P010	Arsenic acid	Arsenic	7440-38-2	1.4	5.0 mg/l TCLP
P011	Arsenic pentoxide	Arsenic	7440-38-2	1.4	5.0 mg/l TCLP
P012	Arsenic trioxide	Arsenic	7440-38-2	1.4	5.0 mg/l TCLP
P013	Barium cyanide	Barium	7440-39-3	NA	7.6 mg/l TCLP
		Cyanides (Total)[7]	57-12-5	1.2	590
		Cyanides (Amenable)[7]	57-12-5	0.86	30

TREATMENT STANDARDS FOR HAZARDOUS WASTES

Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	Regulated Hazardous Constituent		Wastewaters	Nonwastewaters
		Common Name	CAS[2] Number	Concentration in mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
P014	Thiophenol (Benzene thiol)	Thiophenol (Benzene thiol)	108-98-5	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
P015	Beryllium dust	Beryllium	7440-41-7	RMETL; or RTHRM	RMETL; or RTHRM
P016	Dichloromethyl ether (Bis(chloromethyl)ether)	Dichloromethyl ether	542-88-1	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
P017	Bromoacetone	Bromoacetone	598-31-2	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
P018	Brucine	Brucine	357-57-3	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
P020	2-sec-Butyl-4,6-dinitrophenol (Dinoseb)	2-sec-Butyl-4,6-dinitrophenol (Dinoseb)	88-85-7	0.066	2.5
P021	Calcium cyanide	Cyanides (Total)[7]	57-12-5	1.2	590
		Cyanides (Amenable)[7]	57-12-5	0.86	30
P022	Carbon disulfide	Carbon disulfide	75-15-0	3.8	INCIN
		Carbon disulfide; alternate[6] standard for nonwastewaters only	75-15-0	NA	4.8 mg/l TCLP
P023	Chloroacetaldehyde	Chloroacetaldehyde	107-20-0	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
P024	p-Chloroaniline	p-Chloroaniline	106-47-8	0.46	16
P026	1-(o-Chlorophenyl)thiourea	1-(o-Chlorophenyl)thiourea	5344-82-1	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
P027	3-Chloropropionitrile	3-Chloropropionitrile	542-76-7	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
P028	Benzyl chloride	Benzyl chloride	100-44-7	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
P029	Copper cyanide	Cyanides (Total)[7]	57-12-5	1.2	590
		Cyanides (Amenable)[7]	57-12-5	0.86	30
P030	Cyanides (soluble salts and complexes)	Cyanides (Total)[7]	57-12-5	1.2	590
		Cyanides (Amenable)[7]	57-12-5	0.86	30
P031	Cyanogen	Cyanogen	460-19-5	CHOXD; WETOX; or INCIN	CHOXD; WETOX; or INCIN
P033	Cyanogen chloride	Cyanogen chloride	506-77-4	CHOXD; WETOX; or INCIN	CHOXD; WETOX; or INCIN
P034	2-Cyclohexyl-4,6-dinitrophenol	2-Cyclohexyl-4,6-dinitrophenol	131-89-5	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
P036	Dichlorophenylarsine	Arsenic	7440-38-2	1.4	5.0 mg/l TCLP

TREATMENT STANDARDS FOR HAZARDOUS WASTES

Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] Number	Concentration in mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
P037	Dieldrin	Dieldrin	60-57-1	0.017	0.13
P038	Diethylarsine	Arsenic	7440-38-2	1.4	5.0 mg/l TCLP
P039	Disulfoton	Disulfoton	298-04-4	0.017	6.2
P040	O,O Diethyl O pyrazinyl phosphorothioate	O,O Diethyl O pyrazinyl phosphorothioate	297-97-2	CARBN; or INCIN	CMBST
P041	Diethyl-p-nitrophenyl phosphate	Diethyl-p-nitrophenyl phosphate	311-45-5	CARBN; or INCIN	CMBST
P042	Epinephrine	Epinephrine	51-43-4	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
P043	Diisopropylfluorophosphate (DFP)	Diisopropylfluorophosphate (DFP)	55-91-4	CARBN; or INCIN	CMBST
P044	Dimethoate	Dimethoate	60-51-5	CARBN; or INCIN	CMBST
P045	Thiofanox	Thiofanox	39196-18-4	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
P046	alpha, alpha-Dimethylphenethylamine	alpha, alpha-Dimethylphenethylamine	122-09-8	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
P047	4,6-Dinitro-o-cresol	4,6-Dinitro-o-cresol	543-52-1	0.28	160
	4,6 Dinitro-o-cresol salts	NA	NA	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
P048	2,4 Dinitrophenol	2,4-Dinitrophenol	51-28-5	0.12	160
P049	Dithiobiuret	Dithiobiuret	541-53-7	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
P050	Endosulfan	Endosulfan I	939-98-8	0.023	0.066
		Endosulfan II	33213-6-5	0.029	0.13
		Endosulfan sulfate	1031-07-8	0.029	0.13
P051	Endrin	Endrin	72-20-8	0.0028	0.13
		Endrin aldehyde	7421-93-4	0.025	0.13
P054	Aziridine	Aziridine	151-56-4	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
P056	Fluorine	Fluoride (measured in wastewaters only)	16984-48-8	35	ADGAS fb NEUTR
P057	Fluoroacetamide	Fluoroacetamide	640-19-7	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
P058	Fluoroacetic acid, sodium salt	Fluoroacetic acid, sodium salt	62-74-8	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
P059	Heptachlor	Heptachlor	76-44-8	0.0012	0.066

TREATMENT STANDARDS FOR HAZARDOUS WASTES

Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	Regulated Hazardous Constituent		Wastewaters	Nonwastewaters
		Common Name	CAS[2] Number	Concentration in mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
		Heptachlor epoxide	1024-57-3	0.016	0.066
P060	Isodrin	Isodrin	465-73-6	0.021	0.066
P062	Hexaethyl tetraphosphate	Hexaethyl tetraphosphate	757-58-4	CARBN; or INCIN	CMBST
P063	Hydrogen cyanide	Cyanides (Total)[7]	57-12-5	1.2	590
		Cyanides (Amenable)[7]	57-12-5	0.86	30
P064	Isocyanic acid, ethyl ester	Isocyanic acid, ethyl ester	624-83-9	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
P065	P065 (mercury fulminate) nonwastewaters, regardless of their total mercury content, that are not incinerator residues or are not residues from RMERC.	Mercury	7439-97-6	NA	IMERC
	P065 (mercury fulminate) nonwastewaters that are either incinerator residues or are residues from RMERC; and contain greater than or equal to 260 mg/kg total mercury.	Mercury	7339-97-6	NA	RMERC
	P065 (mercury fulminate) nonwastewaters that are residues from RMERC and contain less than 260 mg/kg total mercury.	Mercury	7439-97-6	NA	0.20 mg/l TCLP
	P065 (mercury fulminate) nonwastewaters that are incinerator residues and contain less than 260 mg/kg total mercury.	Mercury	7439-97-6	NA	0.025 mg/l TCLP
	All P065 (mercury fulminate) wastewaters.	Mercury	7439-97-6	0.15	NA
P066	Methomyl	Methomyl	16752-77-5	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
P067	2-Methyl-aziridine	2-Methyl-aziridine	75-55-8	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
P068	Methyl hydrazine	Methyl hydrazine	60-34-4	CHOXD; CHRED; CARBN; BIODG; or INCIN	CHOXD; CHRED, or CMBST
P069	2-Methyllactonitrile	2-Methyllactonitrile	75-86-5	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
P070	Aldicarb	Aldicarb	116-06-3	(WETOX or CHOXD) fb CARBN, or INCIN	INCIN
P071	Methyl parathion	Methyl parathion	298-00-0	0.014	4.6
P072	1-Naphthyl-2-thiourea	1-Naphthyl-2-thiourea	86-88-4	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
P073	Nickel carbonyl	Nickel	7440-02-0	3.98	5.0 mg/l TCLP
P074	Nickel cyanide	Cyanides (Total)[7]	57-12-5	1.2	590
		Cyanides (Amenable)[7]	57-12-5	0.86	30
		Nickel	7440-02-0	3.98	5.0 mg/l TCLP

TREATMENT STANDARDS FOR HAZARDOUS WASTES

Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	Regulated Hazardous Constituent		Wastewaters	Nonwastewaters
		Common Name	CAS[2] Number	Concentration in mg/l[3], or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP", or Technology Code
P075	Nicotine and salts	Nicotine and salts	54-11-5	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
P076	Nitric oxide	Nitric oxide	10102-43-9	ADGAS	ADGAS
P077	p-Nitroaniline	p-Nitroaniline	100-01-6	0.028	28
P078	Nitrogen dioxide	Nitrogen dioxide	10102-44-0	ADGAS	ADGAS
P081	Nitroglycerin	Nitroglycerin	55-63-0	CHOXD; CHRED; CARBN; BIODG; or INCIN	CHOXD; CHRED; or CMBST
P082	N-Nitrosodimethylamine	N-Nitrosodimethylamine	62-75-9	0.40	2.3
P084	N-Nitrosomethylvinylamine	N-Nitrosomethylvinylamine	4549-40-0	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
P085	Octamethylpyrophosphoramide	Octamethylpyrophosphoramide	152-16-9	CARBN; or INCIN	CMBST
P087	Osmium tetroxide	Osmium tetroxide	20816-12-0	RMETL; or RTHRM	RMETL; or RTHRM
P088	Endothall	Endothall	145-73-3	(WETOX or CHOXD) fb CARBN; or INCIN	CMBST
P089	Parathion	Parathion	56-38-2	0.014	4.6
P092	P092 (phenyl mercuric acetate) nonwastewaters, regardless of their total mercury content, that are not incinerator residues or are not residues from RMERC.	Mercury	7439-97-6	NA	IMERC; or RMERC
	P092 (phenyl mercuric acetate) nonwastewaters that are either incinerator residues or are residues from RMERC; and still contain greater than or equal to 260 mg/kg total mercury.	Mercury	7439-97-6	NA	RMERC
	P092 (phenyl mercuric acetate) nonwastewaters that are residues from RMERC and contain less than 260 mg/kg total mercury.	Mercury	7439-97-6	NA	0.20 mg/l TCLP
	P092 (phenyl mercuric acetate) nonwastewaters that are incinerator residues and contain less than 260 mg/kg total mercury.	Mercury	7439-97-6	NA	0.025 mg/l TCLP
	All P092 (phenyl mercuric acetate) wastewaters.	Mercury	7439-97-6	0.15	NA
P093	Phenylthiourea	Phenylthiourea	103-85-5	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
P094	Phorate	Phorate	298-02-2	0.021	4.6
P095	Phosgene	Phosgene	75-44-5	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
P096	Phosphine	Phosphine	7803-51-2	CHOXD; CHRED; or INCIN	CHOXD; CHRED; or INCIN
P097	Famphur	Famphur	52-85-7	0.017	15
P098	Potassium cyanide.	Cyanides (Total)[7]	57-12-5	1.2	590

TREATMENT STANDARDS FOR HAZARDOUS WASTES

Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	Regulated Hazardous Constituent		Wastewaters	Nonwastewaters
		Common Name	CAS[2] Number	Concentration in mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP" or Technology Code
		Cyanides (Amenable)[7]	57-12-5	0.86	30
P099	Potassium silver cyanide	Cyanides (Total)[7]	57-12-5	1.2	590
		Cyanides (Amenable)[7]	57-12-5	0.86	30
		Silver	7440-22-4	0.43	0.30 mg/l TCLP
P101	Ethyl cyanide (Propanenitrile)	Ethyl cyanide (Propanenitrile)	107-12-0	0.24	360
P102	Propargyl alcohol	Propargyl alcohol	107-19-7	(WETOX or CHOXD) fb CARBN; or INCIN	CMBST
P103	Selenourea	Selenium	7782-49-2	0.82	0.16 mg/l TCLP
P104	Silver cyanide	Cyanides (Total)[7]	57-12-5	1.2	590
		Cyanides (Amenable)[7]	57-12-5	0.86	30
		Silver	7440-22-4	0.43	0.30 mg/l TCLP
P105	Sodium azide	Sodium azide	26628-22-8	CHOXD; CHRED; CARBN; BIODG; or INCIN	CHOXD; CHRED; or CMBST
P106	Sodium cyanide	Cyanides (Total)[7]	57-12-5	1.2	590
		Cyanides (Amenable)[7]	57-12-5	0.86	30
P108	Strychnine and salts	Strychnine and salts	57-24-9	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
P109	Tetraethyldithiopyrophosphate	Tetraethyldithiopyrophosphate	3689-24-5	CARBN; or INCIN	CMBST
P110	Tetraethyl lead	Lead	7439-92-1	0.69	0.37 mg/l TCLP
P111	Tetraethylpyrophosphate	Tetraethylpyrophosphate	107-49-3	CARBN; or INCIN	CMBST
P112	Tetranitromethane	Tetranitromethane	509-14-8	CHOXD; CHRED; CARBN; BIODG; or INCIN	CHOXD; CHRED; or CMBST
P113	Thallic oxide	Thallium (measured in wastewaters only)	7440-28-0	1.4	RTHRM; or STABL
P114	Thallium selenite	Selenium	7782-49-2	0.82	0.16 mg/l TCLP
P115	Thallium (I) sulfate	Thallium (measured in wastewaters only)	7440-28-0	1.4	RTHRM; or STABL
P116	Thiosemicarbazide	Thiosemicarbazide	79-19-6	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
P118	Trichloromethanethiol	Trichloromethanethiol	75-70-7	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
P119	Ammonium vanadate	Vanadium (measured in wastewaters only)	7440-62-2	4.3	STABL
P120	Vanadium pentoxide	Vanadium (measured in wastewaters only)	7440-62-2	4.3	STABL

TREATMENT STANDARDS FOR HAZARDOUS WASTES

Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] Number	Concentration in mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
P121	Zinc cyanide	Cyanides (Total)[7]	57-12-5	1.2	590
		Cyanides (Amenable)[7]	57-12-5	0.86	30
P122	Zinc phosphide Zn_3P_2, when present at concentrations greater than 10%	Zinc Phosphide	1314-84-7	CHOXD; CHRED; or INCIN	CHOXD; CHRED; or INCIN
P123	Toxaphene	Toxaphene	8001-35-2	0.0095	2.6
U001	Acetaldehyde	Acetaldehyde	75-07-0	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
U002	Acetone	Acetone	67-64-1	0.28	160
U003	Acetonitrile	Acetonitrile	75-05-8	5.6	INCIN
		Acetonitrile; alternate[6] standard for nonwastewaters only	75-05-8	NA	1.8
U004	Acetophenone	Acetophenone	98-86-2	0.010	9.7
U005	2-Acetylaminofluorene	2-Acetylaminofluorene	53-96-3	0.059	140
U006	Acetyl chloride	Acetyl Chloride	75-36-5	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
U007	Acrylamide	Acrylamide	79-06-1	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
U008	Acrylic acid	Acrylic acid	79-10-7	(WETOX or CHOXD) fb CARBN; or INCIN	CMBST
U009	Acrylonitrile	Acrylonitrile	107-13-1	0.24	84
U010	Mitomycin C	Mitomycin C	50-07-7	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
U011	Amitrole	Amitrole	61-82-5	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
U012	Aniline	Aniline	62-53-3	0.81	14
U014	Auramine	Auramine	492-80-8	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
U015	Azaserine	Azaserine	115-02-6	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
U016	Benz(c)acridine	Benz(c)acridine	225-51-4	(WETOX or CHOXD) fb CARBN; or INCIN	CMBST
U017	Benzal chloride	Benzal chloride	98-87-3	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
U018	Benz(a)anthracene	Benz(a)anthracene	56-55-3	0.059	3.4
U019	Benzene	Benzene	71-43-2	0.14	10

TREATMENT STANDARDS FOR HAZARDOUS WASTES

Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] Number	Concentration in mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
U020	Benzenesulfonyl chloride	Benzenesulfonyl chloride	98-09-9	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
U021	Benzidine	Benzidine	92-87-5	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
U022	Benzo(a)pyrene	Benzo(a)pyrene	50-32-8	0.061	3.4
U023	Benzotrichloride	Benzotrichloride	98-07-7	CHOXD; CHRED; CARBN; BIODG; or INCIN	CHOXD; CHRED; or CMBST
U024	bis(2-Chloroethoxy)methane	bis(2-Chloroethoxy)methane	111-91-1	0.036	7.2
U025	bis(2-Chloroethyl)ether	bis(2-Chloroethyl)ether	111-44-4	0.033	6.0
U026	Chlornaphazine	Chlornaphazine	494-03-1	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
U027	bis(2-Chloroisopropyl)ether	bis(2-Chloroisopropyl)ether	108-60-1	0.055	7.2
U028	bis(2-Ethylhexyl) phthalate	bis(2-Ethylhexyl) phthalate	117-81-7	0.28	28
U029	Methyl bromide (Bromomethane)	Methyl bromide (Bromomethane)	74-83-9	0.11	15
U030	4-Bromophenyl phenyl ether	4-Bromophenyl phenyl ether	101-55-3	0.055	15
U031	n-Butyl alcohol	n-Butyl alcohol	71-36-3	5.6	2.6
U032	Calcium chromate	Chromium (Total)	7440-47-3	2.77	0.86 mg/l TCLP
U033	Carbon oxyfluoride	Carbon oxyfluoride	353-50-4	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
U034	Trichloroacetaldehyde (Chloral)	Trichloroacetaldehyde (Chloral)	75-87-6	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
U035	Chlorambucil	Chlorambucil	305-03-3	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
U036	Chlordane	Chlordane (alpha and gamma isomers)	57-74-9	0.0033	0.26
U037	Chlorobenzene	Chlorobenzene	108-90-7	0.057	6.0
U038	Chlorobenzilate	Chlorobenzilate	510-15-6	0.10	INCIN
U039	p-Chloro-m-cresol	p-Chloro-m-cresol	59-50-7	0.018	14
U041	Epichlorohydrin (1-Chloro-2,3-epoxypropane)	Epichlorohydrin (1-Chloro-2,3-epoxypropane)	106-89-8	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
U042	2-Chloroethyl vinyl ether	2-Chloroethyl vinyl ether	110-75-8	0.062	INCIN
U043	Vinyl chloride	Vinyl chloride	75-01-4	0.27	6.0
U044	Chloroform	Chloroform	67-66-3	0.046	6.0

TREATMENT STANDARDS FOR HAZARDOUS WASTES

Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] Number	Concentration in mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
U045	Chloromethane (Methyl chloride)	Chloromethane (Methyl chloride)	74-87-3	0.19	30
U046	Chloromethyl methyl ether	Chloromethyl methyl ether	107-30-2	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
U047	2-Chloronaphthalene	2-Chloronaphthalene	91-58-7	0.055	5.6
U048	2-Chlorophenol	2-Chlorophenol	95-57-8	0.044	5.7
U049	4-Chloro-o-toluidine hydrochloride	4-Chloro-o-toluidine hydrochloride	3165-93-3	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
U050	Chrysene	Chrysene	218-01-9	0.059	3.4
U051	Creosote	Naphthalene	91-20-3	0.059	5.6
		Pentachlorophenol	87-86-5	0.089	7.4
		Phenanthrene	85-01-8	0.059	5.6
		Pyrene	129-00-0	0.067	8.2
		Toluene	108-88-3	0.080	10
		Xylenes-mixed isomers (sum of o-, m-, and p-xylene concentrations)	1330-20-7	0.32	30
		Lead	7439-92-1	0.69	0.37 mg/l TCLP
U052	Cresols (Cresylic acid)	o-Cresol	95-48-7	0.11	5.6
		m-Cresol (difficult to distinguish from p-cresol)	108-39-4	0.77	5.6
		p-Cresol (difficult to distinguish from m-cresol)	106-44-5	0.77	5.6
		Cresol-mixed isomers (Cresylic acid) (sum of o-, m-, and p-cresol concentrations)	1319-77-3	0.88	11.2
U053	Crotonaldehyde	Crotonaldehyde	4170-30-3	(WETOX or CHOXD) fb CARBN; or INCIN	CMBST
U055	Cumene	Cumene	98-82-8	(WETOX or CHOXD) fb CARBN; or INCIN	CMBST
U056	Cyclohexane	Cyclohexane	110-82-7	(WETOX or CHOXD) fb CARBN; or INCIN	CMBST
U057	Cyclohexanone	Cyclohexanone	108-94-1	0.36	CMBST
		Cyclohexanone; alternate[6] standard for nonwastewaters only	108-94-1	NA	0.75 mg/l TCLP
U058	Cyclophosphamide	Cyclophosphamide	50-18-0	CARBN; or INCIN	CMBST

TREATMENT STANDARDS FOR HAZARDOUS WASTES

Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common name	CAS[2] Number	Concentration in mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
U059	Daunomycin	Daunomycin	20830-81-3	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
U060	DDD	o,p' DDD	53 19 0	0.023	0.087
		p,p'-DDD	72 54-8	0.023	0.087
U061	DDT	o-p'-DDT	789 02-6	0.0039	0.087
		p,p'-DDT	50-29-3	0.0039	0.087
		o,p'-DDD	53-19-0	0.023	0.087
		p,p'-DDD	72-54 8	0.023	0.087
		o,p'-DDE	3424-82-6	0.031	0.087
		p,p'-DDE	72-55-9	0.031	0.087
U062	Diallate	Diallate	2303-16-4	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
U063	Dibenz(a,h)anthracene	Dibenz(a,h)anthracene	53-70-3	0.055	8.2
U064	Dibenz(a,i)pyrene	Dibenz(a,i)pyrene	189-55-9	(WETOX or CHOXD) fb CARBN; or INCIN	CMBST
U066	1,2 Dibromo-3 chloropropane	1,2-Dibromo-3-chloropropane	96-12-8	0.11	15
U067	Ethylene dibromide (1,2-Dibromoethane)	Ethylene dibromide (1,2-Dibromoethane)	106-93-4	0.028	15
U068	Dibromomethane	Dibromomethane	74-95-3	0.11	15
U069	Di-n-butyl phthalate	Di-n-butyl phthalate	84-74-2	0.057	28
U070	o-Dichlorobenzene	o-Dichlorobenzene	95-50-1	0.088	6.0
U071	m-Dichlorobenzene	m-Dichlorobenzene	541-73-1	0.036	6.0
U072	p Dichlorobenzene	p-Dichlorobenzene	106-46-7	0.090	6.0
U073	3,3'-Dichlorobenzidine	3,3'-Dichlorobenzidine	91-94-1	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
U074	1,4-Dichloro-2-butene	cis-1,4-Dichloro-2-butene	1476-11-5	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
		trans-1,4-Dichloro-2-butene	764-41-0	(WETOX or CHOXD) fb CARBN, or INCIN	INCIN
U075	Dichlorodifluoromethane	Dichlorodifluoromethane	75-71-8	0.23	7.2
U076	1,1-Dichloroethane	1,1 Dichloroethane	75-34-3	0.059	6.0
U077	1,2 Dichloroethane	1,2 Dichloroethane	107 06-2	0.21	6.0

TREATMENT STANDARDS FOR HAZARDOUS WASTES

Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] Number	Concentration in mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
U078	1,1-Dichloroethylene	1,1-Dichloroethylene	75-35-4	0.025	6.0
U079	1,2-Dichloroethylene	trans-1,2-Dichloroethylene	156-60-5	0.054	30
U080	Methylene chloride	Methylene chloride	75-09-2	0.089	30
U081	2,4-Dichlorophenol	2,4-Dichlorophenol	120-83-2	0.044	14
U082	2,6-Dichlorophenol	2,6-Dichlorophenol	87-65-0	0.044	14
U083	1,2-Dichloropropane	1,2-Dichloropropane	78-87-5	0.85	18
U084	1,3-Dichloropropylene	cis-1,3-Dichloropropylene	10061-01-5	0.036	18
		trans-1,3-Dichloropropylene	10061-02-6	0.036	18
U085	1,2:3,4 Diepoxybutane	1,2:3,4-Diepoxybutane	1464-53-5	(WETOX or CHOXD) fb CARBN; or INCIN	CMBST
U086	N,N'-Diethylhydrazine	N,N'-Diethylhydrazine	1615-80-1	CHOXD; CHRED; CARBN; BIODG; or INCIN	CHOXD; CHRED; or CMBST
U087	O,O-Diethyl S-methyldithiophosphate	O,O-Diethyl S-methyldithiophosphate	3288-58-2	CARBN; or INCIN	CMBST
U088	Diethyl phthalate	Diethyl phthalate	84-66-2	0.20	28
U089	Diethyl stilbestrol	Diethyl stilbestrol	56-53-1	(WETOX or CHOXD) fb CARBN; or INCIN	CMBST
U090	Dihydrosafrole	Dihydrosafrole	94-58-6	(WETOX or CHOXD) fb CARBN; or INCIN	CMBST
U091	3,3'-Dimethoxybenzidine	3,3'-Dimethoxybenzidine	119-90-4	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
U092	Dimethylamine	Dimethylamine	124-40-3	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
U093	p-Dimethylaminoazobenzene	p-Dimethylaminoazobenzene	60-11-7	0.13	INCIN
U094	7,12-Dimethylbenz(a)anthracene	7,12-Dimethylbenz(a)anthracene	57-97-6	(WETOX or CHOXD) fb CARBN; or INCIN	CMBST
U095	3,3'-Dimethylbenzidine	3,3'-Dimethylbenzidine	119-93-7	(WETOX or CHOXD) fb CARBN, or INCIN	INCIN
U096	alpha, alpha-Dimethyl benzyl hydroperoxide	alpha, alpha-Dimethyl benzyl hydroperoxide	80-15-9	CHOXD; CHRED; CARBN, BIODG; or INCIN	CHOXD; CHRED; or CMBST
U097	Dimethylcarbamoyl chloride	Dimethylcarbamoyl chloride	79-44-7	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
U098	1,1-Dimethylhydrazine	1,1-Dimethylhydrazine	57-14-7	CHOXD; CHRED; CARBN, BIODG; or INCIN	CHOXD, CHRED; or CMBST

TREATMENT STANDARDS FOR HAZARDOUS WASTES

Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	Regulated Hazardous Constituent		Wastewaters	Nonwastewaters
		Common Name	CAS[2] Number	Concentration in mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
U099	1,2 Dimethylhydrazine	1,2-Dimethylhydrazine	540-73-8	CHOXD; CHRED; CARBN; BIODG; or INCIN	CHOXD; CHRED; or CMBST
U101	2,4 Dimethylphenol	2,4-Dimethylphenol	105-67-9	0.036	14
U102	Dimethyl phthalate	Dimethyl phthalate	131-11-3	0.047	28
U103	Dimethyl sulfate	Dimethyl sulfate	77-78-1	CHOXD; CHRED; CARBN; BIODG; or INCIN	CHOXD; CHRED; or CMBST
U105	2,4 Dinitrotoluene	2,4-Dinitrotoluene	121-14-2	0.32	140
U106	2,6-Dinitrotoluene	2,6-Dinitrotoluene	606-20-2	0.55	28
U107	Di-n-octyl phthalate	Di-n-octyl phthalate	117-84-0	0.017	28
U108	1,4-Dioxane	1,4-Dioxane	123-91-1	(WETOX or CHOXD) fb CARBN; or INCIN	CMBST
		1,4-Dioxane; alternate[6] standard for nonwastewaters only	123-91-1	NA	170
U109	1,2 Diphenylhydrazine	1,2-Diphenylhydrazine	122-66-7	CHOXD; CHRED; CARBN; BIODG; or INCIN	CHOXD; CHRED; or CMBST
		1,2-Diphenylhydrazine; alternate[6] standard for wastewaters only	122-66-7	0.087	NA
U110	Dipropylamine	Dipropylamine	142-84-7	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
U111	Di-n-propylnitrosamine	Di-n-propylnitrosamine	621-64-7	0.40	14
U112	Ethyl acetate	Ethyl acetate	141-78-6	0.34	33
U113	Ethyl acrylate	Ethyl acrylate	140-88-5	(WETOX or CHOXD) fb CARBN; or INCIN	CMBST
U114	Ethylenebisdithiocarbamic acid salts and esters	Ethylenebisdithiocarbamic acid	111-54-6	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
U115	Ethylene oxide	Ethylene oxide	75-21-8	(WETOX or CHOXD) fb CARBN; or INCIN	CHOXD; or INCIN
		Ethylene oxide; alternate[6] standard for wastewaters only	75-21-8	0.12	NA
U116	Ethylene thiourea	Ethylene thiourea	96-45-7	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
U117	Ethyl ether	Ethyl ether	60-29-7	0.12	160
U118	Ethyl methacrylate	Ethyl methacrylate	97-63-2	0.14	160
U119	Ethyl methane sulfonate	Ethyl methane sulfonate	62-50-0	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN

TREATMENT STANDARDS FOR HAZARDOUS WASTES

Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	Regulated Hazardous Constituent		Wastewaters	Nonwastewaters
		Common Name	CAS[2] Number	Concentration in mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
U120	Fluoranthene	Fluoranthene	206-44-0	0.068	3.4
U121	Trichloromonofluoromethane	Trichloromonofluoromethane	75-69-4	0.020	30
U122	Formaldehyde	Formaldehyde	50-00-0	(WETOX or CHOXD) fb CARBN; or INCIN	CMBST
U123	Formic acid	Formic acid	64-18-6	(WETOX or CHOXD) fb CARBN; or INCIN	CMBST
U124	Furan	Furan	110-00-9	(WETOX or CHOXD) fb CARBN; or INCIN	CMBST
U125	Furfural	Furfural	98-01-1	(WETOX or CHOXD) fb CARBN; or INCIN	CMBST
U126	Glycidylaldehyde	Glycidylaldehyde	765-34-4	(WETOX or CHOXD) fb CARBN; or INCIN	CMBST
U127	Hexachlorobenzene	Hexachlorobenzene	118-74-1	0.055	10
U128	Hexachlorobutadiene	Hexachlorobutadiene	87-68-3	0.055	5.6
U129	Lindane	alpha-BHC	319-84-6	0.00014	0.066
		beta-BHC	319-85-7	0.00014	0.066
		delta-BHC	319-86-8	0.023	0.066
		gamma-BHC (Lindane)	58-89-9	0.0017	0.066
U130	Hexachlorocyclopentadiene	Hexachlorocyclopentadiene	77-47-4	0.057	2.4
U131	Hexachloroethane	Hexachloroethane	67-72-1	0.055	30
U132	Hexachlorophene	Hexachlorophene	70-30-4	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
U133	Hydrazine	Hydrazine	302-01-2	CHOXD; CHRED; CARBN; BIODG; or INCIN	CHOXD, CHRED; or CMBST
U134	Hydrogen fluoride	Fluoride (measured in wastewaters only)	16984-48-8	35	ADGAS fb NEUTR; or NEUTR
U135	Hydrogen Sulfide	Hydrogen Sulfide	7783-06-4	CHOXD; CHRED, or INCIN	CHOXD, CHRED, or INCIN
U136	Cacodylic acid	Arsenic	7440-38-2	1.4	5.0 mg/l TCLP
U137	Indeno(1,2,3-c,d)pyrene	Indeno(1,2,3-c,d)pyrene	193-39-5	0.0055	3.4
U138	Iodomethane	Iodomethane	74-88-4	0.19	65
U140	Isobutyl alcohol	Isobutyl alcohol	78-83-1	5.6	170
U141	Isosafrole	Isosafrole	120-58-1	0.081	2.6
U142	Kepone	Kepone	143-50-0	0.0011	0.13

TREATMENT STANDARDS FOR HAZARDOUS WASTES

Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] Number	Concentration in mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
U143	Lasiocarpine	Lasiocarpine	303-34-4	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
U144	Lead acetate	Lead	7439-92-1	0.69	0.37 mg/l TCLP
U145	Lead phosphate	Lead	7439-92-1	0.69	0.37 mg/l TCLP
U146	Lead subacetate	Lead	7439-92-1	0.69	0.37 mg/l TCLP
U147	Maleic anhydride	Maleic anhydride	108-31-6	(WETOX or CHOXD) fb CARBN; or INCIN	CMBST
U148	Maleic hydrazide	Maleic hydrazide	123-33-1	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
U149	Malononitrile	Malononitrile	109-77-3	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
U150	Melphalan	Melphalan	148-82-3	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
U151	U151 (mercury) nonwastewaters that contain greater than or equal to 260 mg/kg total mercury.	Mercury	7439-97-6	NA	RMERC
	U151 (mercury) nonwastewaters that contain less than 260 mg/kg total mercury and that are residues from RMERC only.	Mercury	7439-97-6	NA	0.20 mg/l TCLP
	U151 (mercury) nonwastewaters that contain less than 260 mg/kg total mercury and that are not residues from RMERC..	Mercury	7439-97-6	NA	0.025 mg/l TCLP
	All U151 (mercury) wastewaters.	Mercury	7439-97-6	0.15	NA
	Elemental Mercury Contaminated with Radioactive Materials	Mercury	7439-97-6	NA	AMLGM
U152	Methacrylonitrile	Methacrylonitrile	126-98-7	0.24	84
U153	Methanethiol	Methanethiol	74-93-1	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
U154	Methanol	Methanol	67-56-1	(WETOX or CHOXD) fb CARBN; or INCIN	CMBST
		Methanol; alternate[6] set of standards for both wastewaters and nonwastewaters	67-56-1	5.6	0.75 mg/l TCLP
U155	Methapyrilene	Methapyrilene	91-80-5	0.081	1.5
U156	Methyl chlorocarbonate	Methyl chlorocarbonate	79-22-1	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
U157	3 Methylcholanthrene	3-Methylcholanthrene	56-49-5	0.0055	15
U158	4,4'-Methylene bis(2-chloroaniline)	4,4'-Methylene bis(2-chloroaniline)	101-14-4	0.50	30
U159	Methyl ethyl ketone	Methyl ethyl ketone	78-93-3	0.28	36

TREATMENT STANDARDS FOR HAZARDOUS WASTES

Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] Number	Concentration in mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
U160	Methyl ethyl ketone peroxide	Methyl ethyl ketone peroxide	1338-23-4	CHOXD; CHRED; CARBN; BIODG; or INCIN	CHOXD; CHRED; or CMBST
U161	Methyl isobutyl ketone	Methyl isobutyl ketone	108-10-1	0.14	33
U162	Methyl methacrylate	Methyl methacrylate	80-62-6	0.14	160
U163	N-Methyl N'-nitro N nitrosoguanidine	N Methyl N'-nitro N nitrosoguanidine	70-25-7	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
U164	Methylthiouracil	Methylthiouracil	56-04-2	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
U165	Naphthalene	Naphthalene	91-20-3	0.059	5.6
U166	1,4-Naphthoquinone	1,4-Naphthoquinone	130-15-4	(WETOX or CHOXD) fb CARBN; or INCIN	CMBST
U167	1-Naphthlyamine	1-Naphthlyamine	134-32-7	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
U168	2-Naphthlyamine	2-Naphthlyamine	91-59-8	0.52	INCIN
U169	Nitrobenzene	Nitrobenzene	98-95-3	0.068	14
U170	p-Nitrophenol	p-Nitrophenol	100 02-7	0.12	29
U171	2-Nitropropane	2-Nitropropane	79-46-9	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
U172	N-Nitrosodi-n-butylamine	N-Nitrosodi-n-butylamine	924-16-3	0.40	17
U173	N-Nitrosodiethanolamine	N-Nitrosodiethanolamine	1116-54-7	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
U174	N-Nitrosodiethylamine	N-Nitrosodiethylamine	55-18-5	0.40	28
U176	N-Nitroso-N-ethylurea	N-Nitroso-N-ethylurea	759-73 9	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
U177	N-Nitroso-N-methylurea	N-Nitroso-N-methylurea	684-93-5	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
U178	N-Nitroso-N-methylurethane	N-Nitroso-N-methylurethane	615-53-2	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
U179	N-Nitrosopiperidine	N-Nitrosopiperidine	100-75-4	0.013	35
U180	N-Nitrosopyrrolidine	N-Nitrosopyrrolidine	930-55-2	0.013	35
U181	5-Nitro-o-toluidine	5-Nitro-o-toluidine	99 55 8	0.32	28
U182	Paraldehyde	Paraldehyde	123 63-7	(WETOX or CHOXD) fb CARBN; or INCIN	CMBST
U183	Pentachlorobenzene	Pentachlorobenzene	608 93 5	0 055	10

TREATMENT STANDARDS FOR HAZARDOUS WASTES

Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] Number	Concentration in mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
U184	Pentachloroethane	Pentachloroethane	76-01-7	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
		Pentachloroethane; alternate[6] standards for both wastewaters and nonwastewaters	76-01-7	0.055	6.0
U185	Pentachloronitrobenzene	Pentachloronitrobenzene	82-68-8	0.055	4.8
U186	1,3 Pentadiene	1,3-Pentadiene	504-60-9	(WETOX or CHOXD) fb CARBN; or INCIN	CMBST
U187	Phenacetin	Phenacetin	62-44-2	0.081	16
U188	Phenol	Phenol	108-95-2	0.039	6.2
U189	Phosphorus sulfide	Phosphorus sulfide	1314-80-3	CHOXD; CHRED; or INCIN	CHOXD, CHRED; or INCIN
U190	Phthalic anhydride	Phthalic anhydride (measured as Phthalic acid)	100-21-0	0.055	28
		Phthalic anhydride	85-44-9	0.055	28
U191	2 Picoline	2-Picoline	109-06-8	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
U192	Pronamide	Pronamide	23950-58-5	0.093	1.5
U193	1,3-Propane sultone	1,3-Propane sultone	1120-71-4	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
U194	n-Propylamine	n-Propylamine	107-10-8	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
U196	Pyridine	Pyridine	110-86-1	0.014	16
U197	p-Benzoquinone	p-Benzoquinone	106-51-4	(WETOX or CHOXD) fb CARBN; or INCIN	CMBST
U200	Reserpine	Reserpine	50-55-5	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
U201	Resorcinol	Resorcinol	108-46-3	(WETOX or CHOXD) fb CARBN; or INCIN	CMBST
U202	Saccharin and salts	Saccharin	81-07-2	(WETOX or CHOXD) fb CARBN, or INCIN	INCIN
U203	Safrole	Safrole	94-59-7	0.081	22
U204	Selenium dioxide	Selenium	7782-49-2	0.82	0.16 mg/l TCLP
U205	Selenium sulfide	Selenium	7782-49-2	0.82	0.16 mg/l TCLP
U206	Streptozotocin	Streptozotocin	18883-66-4	(WETOX or CHOXD) fb CARBN, or INCIN	INCIN

TREATMENT STANDARDS FOR HAZARDOUS WASTES

Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] Number	Concentration in mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
U207	1,2,4,5-Tetrachlorobenzene	1,2,4,5-Tetrachlorobenzene	95-94-3	0.055	14
U208	1,1,1,2-Tetrachloroethane	1,1,1,2-Tetrachloroethane	630-20-6	0.057	6.0
U209	1,1,2,2-Tetrachloroethane	1,1,2,2-Tetrachloroethane	79-34-5	0.057	6.0
U210	Tetrachloroethylene	Tetrachloroethylene	127-18-4	0.056	6.0
U211	Carbon tetrachloride	Carbon tetrachloride	56-23-5	0.057	6.0
U213	Tetrahydrofuran	Tetrahydrofuran	109-99-9	(WETOX or CHOXD) fb CARBN; or INCIN	CMBST
U214	Thallium (I) acetate	Thallium (measured in wastewaters only)	7440-28-0	1.4	RTHRM; or STABL
U215	Thallium (I) carbonate	Thallium (measured in wastewaters only)	7440-28-0	1.4	RTHRM; or STABL
U216	Thallium (I) chloride	Thallium (measured in wastewaters only)	7440-28-0	1.4	RTHRM; or STABL
U217	Thallium (I) nitrate	Thallium (measured in wastewaters only)	7440-28-0	1.4	RTHRM, or STABL
U218	Thioacetamide	Thioacetamide	62-55-5	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
U219	Thiourea	Thiourea	62-56-6	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
U220	Toluene	Toluene	108-88-3	0.080	10
U221	Toluenediamine	Toluenediamine	25376-45-8	CARBN; or INCIN	CMBST
U222	o-Toluidine hydrochloride	o-Toluidine hydrochloride	636-21-5	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
U223	Toluene diisocyanate	Toluene diisocyanate	26471-62-5	CARBN; or INCIN	CMBST
U225	Bromoform (Tribromomethane)	Bromoform (Tribromomethane)	75-25-2	0.63	15
U226	1,1,1-Trichloroethane	1,1,1-Trichloroethane	71-55-6	0.054	6.0
U227	1,1,2-Trichloroethane	1,1,2-Trichloroethane	79-00-5	0.054	6.0
U228	Trichloroethylene	Trichloroethylene	79-01-6	0.054	6.0
U234	1,3,5-Trinitrobenzene	1,3,5-Trinitrobenzene	99-35-4	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
U235	tris-(2,3-Dibromopropyl)-phosphate	tris-(2,3-Dibromopropyl)-phosphate	126-72-7	0.11	0.10
U236	Trypan Blue	Trypan Blue	72-57-1	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
U237	Uracil mustard	Uracil mustard	66-75-1	(WETOX or CHOXD) fb CARBN, or INCIN	INCIN

BILLING CODE 6560-50-C

TREATMENT STANDARDS FOR HAZARDOUS WASTES

Waste Code	Waste Description and Treatment/Regulatory Subcategory[1]	REGULATED HAZARDOUS CONSTITUENT		WASTEWATERS	NONWASTEWATERS
		Common Name	CAS[2] Number	Concentration in mg/l[3]; or Technology Code[4]	Concentration in mg/kg[5] unless noted as "mg/l TCLP"; or Technology Code
U238	Urethane (Ethyl carbamate)	Urethane (Ethyl carbamate)	51-79-6	(WETOX or CHOXD) fb CARBN, or INCIN	INCIN
U239	Xylenes	Xylenes mixed isomers (sum of o-, m-, and p-xylene concentrations)	1330-20-7	0.32	30
U240	2,4 D (2,4 Dichlorophenoxyacetic acid)	2,4 D (2,4 Dichlorophenoxyacetic acid)	94-75-7	0.72	10
	2,4 D (2,4-Dichlorophenoxyacetic acid) ~~salts and esters~~		NA	(WETOX or CHOXD) fb CARBN, or ~~INCIN~~	INCIN
U243	Hexachloropropylene	Hexachloropropylene	1888-71-7	0.035	30
U244	Thiram	Thiram	137-26-8	(WETOX or CHOXD) fb CARBN; or INCIN	INCIN
U246	Cyanogen bromide	Cyanogen bromide	506-68-3	CHOXD; WETOX; or INCIN	CHOXD; WETOX; or INCIN
U247	Methoxychlor	Methoxychlor	72-43-5	0.25	0.18
~~U248~~	~~Warfarin, & salts, when present at concentrations of 0.3% or less~~	~~Warfarin~~	~~81-81-2~~	~~(WETOX or CHOXD) fb CARBN; or~~ INCIN	CMBST
U249	Zinc phosphide, Zn_3P_2, when present at concentrations of 10% or less	Zinc Phosphide	1314-84-7	CHOXD; CHRED; or INCIN	CHOXD; CHRED; or INCIN
U328	o-Toluidine	o-Toluidine	95-53-4	INCIN; or CHOXD fb (BIODG or CARBN); or BIODG fb CARBN.	INCIN; or Thermal Destruction
U353	p-Toluidine	~~p-Toluidine~~	~~106-49-0~~	~~INCIN; or CHOXD fb (BIODG or,~~ CARBN); or BIODG fb CARBN	~~INCIN, or Thermal Destruction~~
U359	2-Ethoxyethanol	2-Ethoxyethanol	110-80-5	INCIN; or CHOXD fb (BIODG or CARBN); or BIODG fb CARBN	CMBST

1 The waste descriptions provided in this table do not replace waste descriptions in 40 CFR part 261. Descriptions of Treatment/Regulatory Subcategories are provided, as needed, to distinguish between applicability of different standards.
2 CAS means Chemical Abstract Services. When the waste code and/or regulated constituents are described as a combination of a chemical with it's salts and/or esters, the CAS number is given for the parent compound only.
3 Concentration standards for wastewaters are expressed in mg/l are based on analysis of composite samples.
4 All treatment standards expressed as a Technology Code or combination of Technology Codes are explained in detail in 40 CFR 268.42, Table 1 - Technology Codes and Descriptions of Technology-Based Standards.
5 Except for Metals (EP or TCLP) and Cyanides (Total and Amenable) the nonwastewater treatment standards expressed as a concentration were established, in part, based upon incineration in units operated in accordance with the technical requirements of 40 CFR part 264, subpart O or 40 CFR part 265, subpart O, or based upon combustion in fuel substitution units operating in accordance with applicable technical requirements. A facility may comply with these treatment standards according to provisions in 40 CFR 268.40(d). All concentration standards for nonwastewaters are based on analysis of grab samples.
6 Where an alternate treatment standard or set of alternate standards has been indicated, a facility may comply with this alternate standard, but only for the Treatment/Regulatory Subcategory or physical form (i.e., wastewater and/or nonwastewater) specified for that alternate standard.
7 Both Cyanides (Total) and Cyanides (Amenable) for nonwastewaters are to be analyzed using Method 9010 or 9012, found in "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", EPA Publication SW 846, as incorporated by reference in 40 CFR 260.11, with a sample size of 10 grams and a distillation time of one hour and 15 minutes.

NOTE: NA means not applicable.

25. Section 268.41 is revised to read as fOllOWS:

~268.41 Treatment standards expressed as concentrations in waste extract

For the requirements previously found in this section end for treatment standards in Table CCWE-Constituent Concentrations in Waste Extracts. refer to ~ 268.40.

26. Section 268.42 is amended by removing Table 2 and Table 3: revising paragraphs (a) introductory text. (c)(2) and (d): adding a note before paragraph (a): and adding the entry "CMBST'" into Table 1.—Technology Codes and Description of Technology-Based Standards in alphabetical order, to read as follows:

5268.42 Treatment standards espressed as specified technologies.

Note: For the requirements previously found in this section in Table 2-.Technology-Based Standards By RCRA Waste Code. and Table 2-Technology-Based Standards for Specific Radioactive Hazardous Mixed Waste. refer to S 268.40.

(a) The folIowing wastes in paragraphs (a)(l) and (a)(2) of this section and in the table in s 268.40 "Treatment Standards for Hazardous wastes." for which standards are expressed as a treatment method rather than a concentration level, must be treated using the technology or technologies specified in paragraphs (a)(l) and (a)(2) and Table 1 of this section.

TABLE 1.—Technology Codes and Description of Technology-Based Standards

Technology code	Description of technology-based standards
CMBST	**Combustion** in incinerators, boilers, or industrial furnaces operated in accordance with the appiicable requirements of 40 CFR part 264, subpart O, or 40 CFR part 66, subpart H.

l *

(C) * * * *

(2) The lab pack does not contain any of the wastes listed in Appendix IV to part 268.

l * * * *

(d) Radioactive hazardous mixed wastes are subject to the treatment standards in S 268.40. Where treatment standards are specified for radioactive mixed wastes in the Table of Treatment Standards, those treatment standards will govern. Where there is no specific treatment standard for radioactive mixed waste, the treatment standard for the hazardous waste (as designated by EPA waste code) applies. Hazardous debris containing radioactive waste is subject to the treatment standards specified in S 268.45.

28. section 268.43 is revised to read as follows:

5268.43 Treatment standards expressed as waste concentrations.

For the requirements previously found in this section and for treatment standards in Table CCW-Constituent Concentrations in Wastes. refer to s 268.40.

29. Section 268.45 (b)(2) is revised to read as follows:

s 268.45 Treatment standards for hazardous debris.

l * * *

(b)* * *

(2) Debris contaminated with listed waste. The contaminants subject to treatment for debris that is contaminated with a prohibited listed hazardous waste are those constituents or wastes for which treatment standards are established for the waste under S 268.40.

30. Section 268.46 is revised to read as follows

s 268.46 Alternative treatment standards

For the treatment standards previously found in this section, refer to S266.40.

31: In Subpart D,s 268.48 is added to read as follows:

s266.48 Universal Treatment Standards

(a) Table UTS identifies the hazardous constituents, along with the nonwastewater and wastewater treatment standard levels, that are used to regulate most prohibited hazardous wastes with numerical limits. For determining compliance with treatment standards for underlying hazardous constituents as defined in S 268.2(i), these treatment standards may not be exceeded. Compliance with these treatment standards is measured by an analysis of grab samples, unless otherwise noted in the following Table UTS.

s268.48 TABLE UTS-UNIVERSAL TREATMENT STANDARDS

egulated constituent—common name	CAS[1] No.	Wastewater standard. Concentration in mg/[2]	Nonwastewater standard. Concentration in mg/kg[3] unless noted as "mg/l TCLP"
Acenaphthylene	208–96–8	0.059	3.4
Acenaphthene	83–32–9	0.059	3.4
cetone	67–64–1	0.28	160
Acetonitrile	75–05–8	5.6	1.8
Acetophenone	96–86–2	0.010	9.7
2-Acetylaminofluorene	53–96–3	0.059	140
Acrolein	107–02–8	0.29	NA
Acrylamide	79–06–1	19	23
Acrylonitrile	107–13–1	0.24	84
Aldrin	309–00–2	0.021	0.066
4-Aminobiphenyl	92–67–1	0.13	NA
Aniline	62–53–3	0.81	14
Anthracene	120–12–7	0.059	3.4
Aramite	140–57–8	0.36	NA
alpha-BHC	319–84–6	0.00014	0.066
beta-BHC	319–85–7	0.00014	0.066
delta-BHC	319–86–8	0.023	0.066
gamma-BHC	58–89–9	0.0017	0.066
Benzene	71–43–2	0.14	10

§ 268.48 TABLE UTS—UNIVERSAL TREATMENT STANDARDS—Continued

Regulated constituent—common name	CAS[1] No.	Wastewater standard. Concentration in mg/l[2]	Nonwastewater standard. Concentration in mg/kg[3] unless noted as "mg/l TCLP"
Benz(a)anthracene	56–55–3	0.059	3.4
Benzal chloride	98–87–3	0.055	6.0
Benzo(b)fluoranthene (difficult to distinguish from benzo(k)fluoranthene)	205–99–2	0.11	6.8
Benzo(k)fluoranthene (difficult to distinguish from benzo(b)fluoranthene)	207–08–9	0.11	6.8
Benzo(g,h,i)perylene	191–24–2	0.0055	1.8
Benzo(a)pyrene	50–32–8	0.061	3.4
Bromodichloromethane	75–27–4	0.35	15
Methyl bromide (Bromomethane)	74–83–9	0.11	15
4-Bromophenyl phenyl ether	101–55–3	0.055	15
n-Butyl alcohol	71–36–3	5.6	2.6
Butyl benzyl phthalate	85–68–7	0.017	28
2-sec-Butyl-4,6-dinitrophenol (Dinoseb)	88–85–7	0.066	2.5
Carbon disulfide	75–15–0	3.8	4.8 mg/l TCLP
Carbon tetrachloride	56–23–5	0.057	6.0
Chlordane (alpha and gamma isomers)	57–74–9	0.0033	0.26
p-Chloroaniline	106–47–8	0.46	16
Chlorobenzene	108–90–7	0.057	6.0
Chlorobenzilate	510–15–6	0.10	NA
2-Chloro-1,3-butadiene	126–99–8	0.057	0.28
Chlorodibromomethane	124–48–1	0.057	15
Chloroethane	75–00–3	0.27	6.0
bis(2-Chloroethoxy)methane	111–91–1	0.036	7.2
bis(2-Chloroethyl)ether	111–44–4	0.033	6.0
Chloroform	67–66–3	0.046	6.0
bis(2-Chloroisopropyl)ether	108–60–1	0.055	7.2
p-Chloro-m-cresol	59–50–7	0.018	14
2-Chloroethyl vinyl ether	110–75–8	0.062	NA
Chloromethane (Methyl chloride)	74–87–3	0.19	30
2-Chloronaphthalene	91–58–7	0.055	5.6
2-Chlorophenol	95–57–8	0.044	5.7
3-Chloropropylene	107–05–1	0.036	30
Chrysene	218–01–9	0.059	3.4
o-Cresol	95–48–7	0.11	5.6
m-Cresol (difficult to distinguish from p-cresol)	108–39–4	0.77	5.6
p-Cresol (difficult to distinguish from m-cresol)	106–44–5	0.77	5.6
Cyclohexanone	108–94–1	0.36	0.75 mg/l TCLP
1,2-Dibromo-3-chloropropane	96–12–8	0.11	15
Ethylene dibromide (1,2-Dibromoethane)	106–93–4	0.028	15
Dibromomethane	74–95–3	0.11	15
2,4-D (2,4-Dichlorophenoxyacetic acid)	94–75–7	0.72	10
o,p'-DDD	53–19–0	0.023	0.087
p,p'-DDD	72–54–8	0.023	0.087
o,p'-DDE	3424–82–6	0.031	0.087
p,p'-DDE	72–55–9	0.031	0.087
o,p'-DDT	789–02–6	0.0039	0.087
p,p'-DDT	50–29–3	0.0039	0.087
Dibenz(a,h)anthracene	53–70–3	0.055	8.2
Dibenz(a,e)pyrene	192–65–4	0.061	NA
m-Dichlorobenzene	541–73–1	0.036	6.0
o-Dichlorobenzene	95–50–1	0.088	6.0
p-Dichlorobenzene	106–46–7	0.090	6.0
Dichlorodifluoromethane	75–71–8	0.23	7.2
1,1-Dichloroethane	75–34–3	0.059	6.0
1,2-Dichloroethane	107–06–2	0.21	6.0
1,1-Dichloroethylene	75–35–4	0.025	6.0
trans-1,2-Dichloroethylene	156–60–5	0.054	30
2,4-Dichlorophenol	120–83–2	0.044	14
2,6-Dichlorophenol	87–65–0	0.044	14
1,2-Dichloropropane	78–87–5	0.85	18
cis-1,3-Dichloropropylene	10061–01–5	0.036	18
trans-1,3-Dichloropropylene	10061–02–6	0.036	18
Dieldrin	60–57–1	0.017	0.13
Diethyl phthalate	84–66–2	0.20	28
2-4-Dimethyl phenol	105–67–9	0.036	14
Dimethyl phthalate	131–11–3	0.047	28
Di-n-butyl phthalate	84–74–2	0.057	28
1,4-Dinitrobenzene	100–25–4	0.32	2.3
4,6-Dinitro-o-cresol	534–52–1	0.28	160
2,4-Dinitrophenol	51–28–5	0.12	160

§ 268.48 TABLE UTS—UNIVERSAL TREATMENT STANDARDS—Continued

Regulated constituent—common name	CAS[1] No.	Wastewater standard. Concentration in mg/[2]	Nonwastewater standard. Concentration in mg/kg[3] unless noted as "mg/l TCLP"
2,4-Dinitrotoluene	121–14–2	0.32	140
2,6-Dinitrotoluene	606–20–2	0.55	28
Di-n-octyl phthalate	117–84–0	0.017	28
p-Dimethylaminoazobenzene	60–11–7	0.13	NA
Di-n-propylnitrosamine	621–64–7	0.40	14
1,4-Dioxane	123–91–1	NA	170
Diphenylamine (difficult to distinguish from diphenylnitrosamine)	122–39–4	0.92	13
Diphenylnitrosamine (difficult to distinguish from diphenylamine)	86–30–6	0.92	13
1,2-Diphenylhydrazine	122–66–7	0.087	NA
Disulfoton	298–04–4	0.017	6.2
Endosulfan I	939–98–8	0.023	0.066
Endosulfan II	33213–6–5	0.029	0.13
Endosulfan sulfate	1–31–07–8	0.029	0.13
Endrin	72–20–8	0.0028	0.13
Endrin aldehyde	7421–93–4	0.025	0.13
Ethyl acetate	141–78–6	0.34	33
Ethyl cyanide (Propanenitrile)	107–12–0	0.24	360
Ethyl benzene	100–41–4	0.057	10
Ethyl ether	60–29–7	0.12	160
bis(2-Ethylhexyl) phthalate	117–81–7	0.28	28
Ethyl methacrylate	97–63–2	0.14	160
Ethylene oxide	75–21–8	0.12	NA
Famphur	52–85–7	0.017	15
Fluoranthene	206–44–0	0.068	3.4
Fluorene	86–73–7	0.059	3.4
Heptachlor	76–44–8	0.0012	0.066
Heptachlor epoxide	1024–57–3	0.016	0.066
Hexachlorobenzene	118–74–1	0.055	10
Hexachlorobutadiene	87–68–3	0.055	5.6
Hexachlorocyclopentadiene	77–47–4	0.057	2.4
HxCDDs (All Hexachlorodibenzo-p-dioxins)	NA	0.000063	0.001
HxCDFs (All Hexachlorodibenzofurans)	NA	0.000063	0.001
Hexachloroethane	67–72–1	0.055	30
Hexachloropropylene	1888–71–7	0.035	30
Indeno (1,2,3-c,d) pyrene	193–39–5	0.0055	3.4
Iodomethane	74–88–4	0.19	65
Isobutyl alcohol	78–83–1	5.6	170
Isodrin	465–73–6	0.021	0.066
Isosafrole	120–58–1	0.081	2.6
Kepone	143–50–8	0.0011	0.13
Methacrylonitrile	126–98–7	0.24	84
Methanol	67–56–1	5.6	0.75 mg/l TCLP
Methapyrilene	91–80–5	0.081	1.5
Methoxychlor	72–43–5	0.25	0.18
3-Methylcholanthrene	56–49–5	0.0055	15
4,4-Methylene bis(2-chloroaniline)	101–14–4	0.50	30
Methylene chloride	75–09–2	0.089	30
Methyl ethyl ketone	78–93–3	0.28	36
Methyl isobutyl ketone	108–10–1	0.14	33
Methyl methacrylate	80–62–6	0.14	160
Methyl methansulfonate	66–27–3	0.018	NA
Methyl parathion	298–00–0	0.014	4.6
Naphthalene	91–20–3	0.059	5.6
2-Naphthylamine	91–59–8	0.52	NA
o-Nitroaniline	88–74–4	0.27	14
p-Nitroaniline	100–01–6	0.028	28
Nitrobenzene	98–95–3	0.068	14
5-Nitro-o-toluidine	99–55–8	0.32	28
o-Nitrophenol	88–75–5	0.028	13
p-Nitrophenol	100–02–7	0.12	29
N-Nitrosodiethylamine	55–18–5	0.40	28
N-Nitrosodimethylamine	62–75–9	0.40	2.3
N-Nitroso-di-n-butylamine	924–16–3	0.40	17
N-Nitrosomethylethylamine	10595–95–6	0.40	2.3
N-Nitrosomorpholine	59–89–2	0.40	2.3
N-Nitrosopiperidine	100–75–4	0.013	35
N-Nitrosopyrrolidine	930–55–2	0.013	35
Parathion	56–38–2	0.014	4.6
Total PCBs (sum of all PCB isomers, or all Aroclors)	1336–36–3	0.10	10

§ 268.48 TABLE UTS—UNIVERSAL TREATMENT STANDARDS—Continued

Regulated constituent—common name	CAS[1] No.	Wastewater standard. Concentration in mg/l[2]	Nonwastewater standard. Concentration in mg/kg[3] unless noted as "mg/l TCLP"
Pentachlorobenzene	608-93-5	0.055	10
PeCDDs (All Pentachlorodibenzo-p-dioxins)	NA	0.000063	0.001
PeCDFs (All Pentachlorodibenzofurans)	NA	0.000035	0.001
Pentachloroethane	76-01-7	0.055	6.0
Pentachloronitrobenzene	82-68-8	0.055	4.8
Pentachlorophenol	87-86-5	0.089	7.4
Phenacetin	62-44-2	0.081	16
Phenanthrene	85-01-8	0.059	5.6
Phenol	108-95-2	0.039	6.2
Phorate	298-02-2	0.021	4.6
Phthalic acid	100-21-0	0.055	28
Phthalic anhydride	85-44-9	0.055	28
Pronamide	23950-58-5	0.093	1.5
Pyrene	129-00-0	0.067	8.2
Pyridine	110-86-1	0.014	16
Safrole	94-59-7	0.081	22
Silvex (2,4,5-TP)	93-72-1	0.72	7.9
2,4,5-T (2,4,5-Trichlorophenoxyacetic acid)	93-76-5	0.72	7.9
1,2,4,5-Tetrachlorobenzene	95-94-3	0.055	14
TCDDs (All Tetrachlorodibenzo-p-dioxins)	NA	0.000063	0.001
TCDFs (All Tetrachlorodibenzofurans)	NA	0.000063	0.001
1,1,1,2-Tetrachloroethane	630-20-6	0.057	6.0
1,1,2,2-Tetrachloroethane	79-34-6	0.057	6.0
Tetrachloroethylene	127-18-4	0.056	6.0
2,3,4,6-Tetrachlorophenol	58-90-2	0.030	7.4
Toluene	108-88-3	0.080	10
Toxaphene	8001-35-2	0.0095	2.6
Bromoform (Tribromomethane)	75-25-2	0.63	15
1,2,4-Trichlorobenzene	120-82-1	0.055	19
1,1,1-Trichloroethane	71-55-6	0.054	6.0
1,1,2-Trichloroethane	79-00-5	0.054	6.0
Trichloroethylene	79-01-6	0.054	6.0
Trichloromonofluoromethane	75-69-4	0.020	30
2,4,5-Trichlorophenol	95-95-4	0.18	7.4
2,4,6-Trichlorophenol	88-06-2	0.035	7.4
1,2,3-Trichloropropane	96-18-4	0.85	30
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	0.057	30
tris-(2,3-Dibromopropyl) phosphate	126-72-7	0.11	0.10
Vinyl chloride	75-01-4	0.27	6.0
Xylenes-mixed isomers (sum of o-, m-, and p-xylene concentrations)	1330-20-7	0.32	30
Antimony	7440-36-0	1.9	2.1 mg/l TCLP
Arsenic	7440-38-2	1.4	5.0 mg/l TCLP
Barium	7440-39-3	1.2	7.6 mg/l TCLP
Beryllium	7440-41-7	0.82	0.014 mg/l TCLP
Cadmium	7440-43-9	0.69	0.19 mg/l TCLP
Chromium (Total)	7440-47-3	2.77	0.86 mg/l TCLP
Cyanides (Total)[4]	57-12-5	1.2	590
Cyanides (Amenable)[4]	57-12-5	0.86	30
Fluoride	16964-48-8	35	NA
Lead	7439-92-1	0.69	0.37 mg/l TCLP
Mercury—Nonwastewater from Retort	7439-97-6	NA	0.20 mg/l TCLP
Mercury—All Others	7439-97-6	0.15	0.025 mg/l TCLP
Nickel	7440-02-0	3.98	5.0 mg/l TCLP
Selenium	7782-49-2	0.82	0.16 mg/l TCLP
Silver	7440-22-4	0.43	0.30 mg/l TCLP
Sulfide	8496-25-8	14	NA
Thallium	7440-28-0	1.4	0.078 mg/l TCLP
Vanadium	7440-62-2	4.3	0.23 mg/l TCLP
Zinc[5]	7440-66-6	2.61	5.3 mg/l TCLP

[1] CAS means Chemical Abstract Services. When the waste code and/or regulated constituents are described as a combination of a chemical with its salts and/or esters, the CAS number is given for the parent compound only.

[2] Concentration standards for wastewaters are expressed in mg/l are based on analysis of composite samples.

[3] Except for Metals (EP or TCLP) and Cyanides (Total and Amenable) the nonwastewater treatment standards expressed as a concentration were established, in part, based upon incineration in units operated in accordance with the technical requirements of 40 CFR part 264, subpart O or 40 CFR part 265, subpart O, or based upon combustion in fuel substitution units operating in accordance with applicable technical requirements. A facility may comply with these treatment standards according to provisions in 40 CFR 268.40(d). All concentration standards for nonwastewaters are based on analysis of grab samples.

[4] Both Cyanides (Total) and Cyanides (Amenable) for nonwastewaters are to be analyzed using Method 9010 or 9012, found in "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", EPA Publication SW-846, as incorporated by reference in 40 CFR 260.11, with a sample size of 10 grams and a distillation time of one hour and 15 minutes.

federal register

Tuesday
August 22, 1995

Part II

Environmental Protection Agency

40 CFR Part 148 et al.

Land Disposal Restrictions-Phase IV Issues Associated With Clean Water Act Treatment Equivalency, and Treatment Standards for Wood Preserving Wastes and Toxicity Characteristic Metal Wastes; Proposed Rule

determine the applicable treatment standards under subpart D of this part. For purposes of pert 268. the waste will carry the waste code for any applicable listed waste under 40 CFR part 261. subpart D. In addition, where the waste exhibits a characteristic, the waste will carry one or more of the characteristic waste codes under 40 CFR part 261, subpart C, except when the treatment standard for the listed waste operates in lieu of the treatment standard for the characteristic waste. as specified in paragraph (b) of this section. If the generator determines that their waste displays a hazardous characteristic (and is not D001 nonwastewaters treated by CMBST, RORGS. or POLYM of S 268.42, Table 1), the generator must determine the underlying hazardous constituents (as defined in s 268.2), in the characteristic wastes.

l * * *

(d)***

(1)***

(ii) A description of the waste as initially generated, including the applicable EPA hazardous waste code(s), treatability group(s), and underlaying hazardous constituents (as defined in S 268.2(i)), unless the waste will be monitored for all underlying hazardous constituents. in which case no constituents need be specified on the notification.

l * * *

Subpart C-Prohibitions on land Disposal

ss268.31, 268.32 , 268.33,268.34, 268.35 and 268.36 (Removed and Revlaed

9. In Subpart C, ss 288.31.268.32, 268.33,268.34,268.35, and 268.36 am removed and resewed, and S 268.30 is revised to read as follws:

S 268.30 Waste specific prohibitions-wood preserving wastes and characteristic Wastes that fail the toxlcity characteristic.

(a) Effective November 20,1995, the wastes specified in 40 CFR 261 as EPA Hazardous Waste numbers DO04-D011 (as measured by the Toxicity Characteristic Leaching procedure). F032. F034. and F035, are prohibited from land disposal.

(b) Effective August 22,1997, soil and debris contaminated with F032, F034, F035:.and radioactive wastes mixed with EPA Hazardous waste numbers D004-D011 (as measured by the Toxicity Characteristic Leaching Procedure) are prohibited from land disposal.

(c) Between November 20,1995 and August 22,1997, hazardous wastes F032, F034, F035: radioactive wastes mixed with EPA Hazardous waste numbers F032, F034, F035, and soil and debris contaminated with these wastes, may redisposed in a landfill or surface impoundment only if such unit is in compliance with the requirements specified in S 268.5(h)(2) of this Part.

(d) The requirements of paragraphs (a) and (b) of this section do not apply

(l) The wastes meet the applicable treatment standards specified in Subpart D of this part;

(2) Persona have bean granted an exemption from a prohibition pursuant to a petition under s 268.6, with respect to those wastes and units covered by the petition:

(3) The wastes meet the applicable alternate treatment standards established pursuant to a petition granted under S 268.44 or

(4) Persons have been granted an extension to the effective date of a prohibition pursuant to s 268.S, with respect to these wastes covered by the extension.

(e) To determine whether a hazardou waste identified in this section exceeds the applicable treatment standards specified in s 268.40. the initial generator must test a sample of the waste extract or the entire waste. depending on whether the treatment standards are expressed as . concentrations in the waste extract or the waste, or the generator may use knowledge of the waste. If the waste contains constituents (including underlying hazardous constituents in characteristic wastes that have been diluted to remove the characteristic) in excess of the applicable Universal Treatment Standard levels of $266.46 o this Part, the waste is prohibited from land disposal, and all requirements of part 268 are applicable. except as othervise specified.

Subpart D-Treatment Standards

10. Section 268.40 is amended by revising paragraph (e), and in the Table of Treatment Standards adding in alpha numericalorder entries for F032, F033, and F034, and revising the entries for D001 High TOC Subcategory, D003 Explosives, DO04 through D011, and F039 to read as follows:

s2668.40 Applicabillty of Treatment standards.

l * * * *

(e) For characteristic wastes subject tc treatment standards in the following table "'Treatment Standards for Hazardous Wastes:' all underlying hazardous constituents (as defined in S 268.2(i)) must meet Universal Treatment Standards, found in 5268.48, Table UTS, prior to land diaposal

l * * * *

TREATMENT STANDARDS FOR HAZARDOUS WASTES

Waste Code	Waste description and treatment/ regulatory subcategory [1]	Regulated Hazardous Constituent		Wastewaters	Nonwastewaters
		Common Name	CAS [2] No.	Concentration in mg/l [3]; or technology code [4]	Concentration in mg/kg [5] unless noted as "mg/l TCLP" or technology code
D001					
	High TOC lgnitable Subcategory. baaed on 40 CFR 2612(a) (l)-Greater then or equal to 10% total organic carbon (Note: this subcategory consists of nonwastewaters only)	NA	NA	NA	RORGS; or CMEST:or POLYM.
D003					

TREATMENT STANDARDS FOR HAZARDOUS WASTES-Continued

Waste Code	Waste description and treatment/ regulatory subcategory [1]	Regulated Hazardous Constituent		Wastewaters	Nonwastewaters
		Common Name	CAS [2] No.	Concentration in mg/l [3]; or technology code [4]	Concentration in mg/kg [5] unless noted as "mg/l TCLP" or technology code
*	Explosives Subcategory based on §261.23(a)(6), (7), and (8)	NA	NA	DEACT and meet §268.48 standards	DEACT and meet §268.48 standards.
*	*	*	*	*	*
D004	Wastes that exhibit, or are expected to exhibit, the characteristic of toxicity for arsenic	Arsenic	7440–38–2	1.4	5.0 mg/l TCLP.
D005	Wastes that exhibit, or are expected to exhibit, the characteristic of toxicity for barium	Barium	7440–39–3	1.2	7.6 mg/l TCLP.
D006	Wastes that exhibit, or are expected to exhibit, the characteristic of toxicity for cadmium	Cadmium	7440–43–9	0.69	0.19 mg/l TCLP.
*	*	*	*	*	*
D007	Wastes that exhibit, or are expected to exhibit, the characteristic of toxicity for chromium	Chromium (Total)	7440–47–3	2.77	0.86 mg/l TCLP.
D008	Wastes that exhibit, or are expected to exhibit, the characteristic of toxicity for lead	Lead	7439–92–1	0.69	0.37 mg/l TCLP.
*	*	*	*	*	*
D009	Nonwastewaters that exhibit, or are expected to exhibit, the characteristic of toxicity for mercury; and contain less than 260 mg/kg total mercury. (Low Mercury Subcategory)	Mercury	7439–97–6	NA	0.20 mg/l TCLP.
	All D009 wastewaters	Mercury	7439–97–6	0.15	
*	*	*	*	*	*
D010	Wastes that exhibit, or are expected to exhibit, the characteristic of toxicity for selenium	Selenium	7782–49–2	0.82	0.16 mg/l TCLP.
D011	Wastes that exhibit, or are expected to exhibit, the characteristic of toxicity for silver	Silver	7440–22–4	0.43	0.30 mg/l TCLP.

TREATMENT STANDARDS FOR HAZARDOUS WASTES—Continued

Waste Code	Waste description and treatment/regulatory subcategory [1]	Regulated Hazardous Constituent		Wastewaters	Nonwastewaters
		Common Name	CAS [2] No.	Concentration in mg/l [3]; or technology code [4]	Concentration in mg/kg [5] unless noted as "mg/l TCLP" or technology code
*	* *	* * *		*	*
F032	Wastewaters, process residuals, preservative drippage, and spent formulations from wood preserving processes generated at plants that currently use or have previously used chlorophenolic formulations (except potentially cross-contaminated wastes that have had the FO32 waste code deleted in accordance with section 40 CFR 261.35 and where the generator does not resume or initiate use of chlorophenolic formulations). This listing does not include K001 bottom sediment sludge from the treatment of wastewater from wood preserving processes that use creosote and/or pentachlorophenol	Pentachlorodibenzofurans	NA	0.000063	0.001
		Tetrachlorodibenzofurans	NA	0.000063	0.001
		Arsenic	7440–38–2	1.4	5.0 mg/l TCLP.
		Chromium (Total)	7440–47–3	2.77	0.86 mg/l TCLP.
F034	Wastewaters, process residuals, preservative drippage, and spent formulations from wood preserving processes generated at plants that use creosote formulations. This listing does not include K00l bottom sediment sludge from the treatment of wastewater from wood preserving processes that use creosote and/or pentachlorophenol	Acenaphthene	83–32–9	0.059	3.4
		Anthracene	120–12–7	0.059	3.4
		Benz(a)anthracene	56–55–3	0.059	3.4
		Benzo(a)pyrene	50–32–8	0.061	3.4
		Chrysene	218–01–9	0.059	3.4
		2,4–Dimethylphenol	105–67–9	0.036	14
		Fluorene	86–73–7	0.059	3.4
		Hexachlorodibenzofurans	NA	0.000063	0.001
		Hexachlorodibenzo-p-dioxins.	NA	0.000063	0.001
		Naphthalene	91–20–3	0.059	5.6
		Pentachlorodibenzo-p-dioxins.	NA	0.000063	0.001
		Pentachlorophenol	87–86–5	0.089	7.4
		Phenanthrene	85–01–8	0.059	5.6
		Phenol	108–95–2	0.039	6.2
		Pyrene	129–00–0	0.067	8.2
		Tetrachlorodibenzo-p-dioxins.	NA	0.000063	0.001
		2,3,4,6–Tetrachlorophenol	58–90–2	0.030	7.4
		2,4,6–Trichlorophenol	88–06–2	0.035	7.4
		Arsenic	7440–38–2	1.4	5.0 mg/l TCLP.
		Chromium (Total)	7440–47–3	2.77	0.86 mg/l TCLP.
F035	Wastewaters, process residuals, preservative drippage, and spent formulations from wood preserving processes generated at plants that use inorganic preservatives containing arsenic or chromium. This listing does not include K00l bottom sediment sludge from the treatment of wastewater from wood preserving processes that use creosote and/or pentachlorophenol	Acenaphthene	83–32–9	0.059	3.4
		Anthracene	120–12–7	0.059	3.4
		Benz(a)anthracene	56–55–3	0.059	3.4
		Benzo(a)pyrene	50–32–8	0.061	3.4
		Chrysene	218–01–9	0.059	3.4
		2,4–Dimethylphenol	105–67–9	0.036	14
		Fluorene	86–73–7	0.059	3.4
		Naphthalene	91–20–3	0.059	5.6
		Pentachlorophenol	87–86–5	0.089	7.4
		Phenanthrene	85–01–8	0.059	5.6
		Phenol	108–95–2	0.039	6.2
		Pyrene	129–00–0	0.067	8.2
		2,3,4,6–Tetrachlorophenol	58–90–2	0.030	7.4
		2,4,6–Trichlorophenol	88–06–2	0.035	7.4
		Arsenic	7440–38–2	1.4	5.0 mg/l TCLP.
		Chromium (Total)	7440–47–3	2.77	0.86 mg/l TCLP.

TREATMENT STANDARDS FOR HAZARDOUS WASTES-COntinued

Waste Code	Waste description arrd treatment/ regulatory subcategory[1]	Regulated Hazardous Constrituent		Wastewaters	Nonwastewaters
		~ Common Name	CAS[2] No.	mg/l[3]; or technology code[4]	Concentrationat in noted as "mg/l TCLP" or tech-
F039	Laachate (liquids that have percolated throgh land disposed Wastes) resulting from the disposal of more than one restricted waste classified as hazardous under subpart D of this part. (Leachate resulting from the disposal of one or more of the following EPA Hszardous Wastes and no other Hazardous Wastes retains its EPA Hazardous Waste Number(s): F020, F021, F022, F026. F027, and/or F028)	Universal Treatment Standards in s 268,48 apply. with the exceptions of flouride,vanadium,and zinc	NA	Universal Treatment standards in s268.48 apply, wlth the exceptions of vanadium and Zinc	Universal Treatment standards in s268.48 apply. with the exceptions of vanadium and Zinc.

* * * * * *

11. Section 268.42(a)(3) is amended by adding "POLYM" in alphabetical order to Table 1 to read as follows:

§ 268.42 Treatment standards expressed as specified technologies.

* * * * *

(a) * * *

(3) * * *

TABLE 1.—TECHNOLOGY CODES AND DESCRIPTION OF TECHNOLOGY-EASED STANDARDS

Technology code	Description of technology-based standards
*	* * * * * *
POLYM	Formation of complex high-molecular weight solids through polymerization of monomers in high-TOC D001 nonwastewaters.

* * * * *

12. Section 268.44 is amended by revising the introductory text of paragraph (o), the title of the table, and the "see also" column of the table to read as follows.

s268.44 variance from a treatment standard

* * * * *

(0) The following facilities are excluded from the treatment standards under s268.40 and are subject to the following constituent concentrations:

TABLE 2.—WASTES EXCLUDED FROM THE TREATMENT STANDARDS UNDER s268.40

Facility name and address	Waste code	See also	Regulated hazardous constituent	Wastewaters		Nonwastewaters	
				Concentrations (mg/l)	Notes	Concentrations (mg/kg)	Notes
* * *	* * *	§ 268.40	*	*	*	* *	*
* * *	* * *	§ 268.40	*	*	*	* *	*

l

Appendix I, Appendix II Appendix III, Appendix VII, Appendix VIII, Appendix IX and Appendix X to Part 268 [Removed and Reserved]

13. Appendix I Appendix II Appendix III. Appendix VII, Appendix VIII, Appendix IX and Appendixto Part 268 are removed and reserved, and Appendix VI to Part 268 is amended by revising the introductory text to read as follows

Appendix VI to Part 268-Recommended Technologies to Achieve Deactivation of Characteristics in Section 268.40

The treatment standard for many subcategories of D001. D002. and D003 wastes as well as for K044, K045. and K047 wastes is listed in s268.40 as "Deactivation and meet UTS." EPA has determined that many technologies. when used alone or in combination. can achieve the deactivation portion of the treatment standard. Characteristic wastes that also contain underlying hazardous constituents (see s 268.2) must ha treated not only by a "deactivating" technology to remove the charactaristic, but also to achieve the universal treatment standards (UTS) for underlying hazardous constituents. The following appendix presents a partial list of technologies. utilizing the five letter technology codes established in 40 CFR 266.42 Table I, that may ha useful in meeting the tratment standard. Use of these specific technologies is not mandatory and does not preclude direct reuse, recovery, and/or the use of other pretreatment technologies. provided deactivation is achieved and if applicable, underlying hazardous constituents am treated to achieve the UTS.

l * * * *

PART 271-REQUIREMENTS FOR AUTHORIZATION OF STATE HAZARDOUS WASTE PROGRAMS

14. The authority citation for part 271 continues to read as follows:

Authority 42 U.S.C 6905. 6912(a) and 6926.

Subpart A-Requirements for Final Authorization

15. Section 271.l(j) is amended by adding the following entries to Table 1 in chronological order by date of publication in the Federal Register, and by adding the following entries to Table 2 in chronological order by effective date in the Federal Register. to read as follows

s271.1 Purpose and scope.

* * * * *

(j)***

TABLE 1.—REGULATIONS IMPLEMENTING THE HAZARDOUS AND SOLID WASTE AMENDMENTS OF 1984

Promulgation date	Title of Regulation	Federal Register reference	Effective date
[Insert date of publication of final rule in the Federal Register (FR)].	Land Disposal Restric-	[Insert FR page num-	[Insert date of 90 days from date of publica-

l * * *

TABLE 2.—SELF-IMPLEMENTING PROVISIONS OF THE SOLID WASTE AMENDMENTS OF 1984

Effective data	Self-implementing provision	RCRA citation	Federal Register raference
		•	•
[Insert date 90 days from date of publication	Prohibition on land disposal of newly listed and identified wastes.	3004(g)(4) (C) and 3004 (m).	[Insert date of publication of final rule] 59 FR [insert page numbers].
[Insert date 2 years from date of publication of	Prohibition on land disposal of radioactive waste mixed with the newly listed or identified wastes, including soil and debris.	3004(m)	Do.
		3004(g)(4)(C) and 3004(m).	Do.
		•	•

16. Section 271.28 is added to read as follows

s271.2s Streamllned authorization

\- -

(a) The procedures contained in this section may be used by a State when revising its program by applying for authorization for the following rules, or parts of rules:

(1) The following changes promulgated by the Land Disposal Restrictions Phase Two rule (59 FR 47980, September 19, 1994) if a State is authorized for Land Disposal Restrictions rules up to the Third Third (55 FR 22520, June 1, 1990):

(i) New Table in § 268.40; and

(ii) New § 268.48.

***(2) The following changes proposed* by the Land Disposal Restrictions Phase Three rule (proposed at 60 FR 11702, May 2, 1995) if a State is authorized for Land Disposal Restrictions rules up to the Third Third (55 FR 22520, June 1, 1990):**

(i) Amendments to §§ 268.20(b), 268.2, 268.7, 268.39, the Table to 268.40, 268.48; and

(ii) Removal of §§ 268.8, 268.10–12.

(3) All provided regulatory provisions of the proposed Land Disposal Restrictions Phase Four rule ([insert date of publication of final rule] FR

[Insert FR page number]), except amended § 268.1, if a State is authorized for Land Disposal Restrictions rules up to the Third Third (55 FR 22520, June 1, 1990).

(b) An application for a revision of a State's program for the provisions stated in paragraph (a) of this section shall consist of:

(1) A certification from the State that its laws provide authority that is equivalent to and no less stringent than the provisions specified in paragraph (a), and which includes references to the specific statutes, administrative regulations and where appropriate, judicial decisions. State statutes end regulations cited in the State certification shall be fully effective at the time the certification is signed; and

(2) Copies of all applicable State statutes and regulations.

(c) Within 30 days of receipt by BPA of a State's application for final authorization to implement a rule specified in paragraph (a) of this section, if the Administrator determines that the application is not complete, the Administrator shall notify the State that the application is incomplete. This notice shall include a concise statement of the deficiencies which form the basis for this determination.

(d) For purposes of this section an incomplete application is one where:

(1) Copies of applicable statutes or regulations were not included;

(2) The statutes or regulations relied on by the State to implement the program revisions are not yet in effect;

(3) The State is not authorized to implement the prerequisite RCRA rules as specified in paragraph (a) of this section: or

(4) In the certification, the citations to the specific statutes, administrative regulations and where appropriate, judicial decisions are not included or incomplete.

(e) Within 60 days after receipt of a complete final application from a State for final authorization to implement a rule or rules specified in paragraph (a) of this section. absent information in the possession of EPA, the Administrator shall publish an immediate final notice of the decision to grant final authorization as follows:

(1) In the Federal Register;

(2) In enough of the largest newspapers in the State to attract Statewide attention; and

(3) By mailing to persons on the State agency mailing list and to any other persons whom the Agency has reason to believe are interested.

(f) The public notice under paragraph (e) of this section shall summarize the State program revision and provide for an opportunity to comment for a priod of 30 days.

(g) Approval of State program revisions under this section shall become effective 60 days after the date of publication in the Federal Register in accordance with paragraph (e) of this section, unless a significant adverse comment pertaining to the State program revision discussed in the notice is received by the end of the comment period. If a significant adverse comment is received. the Administrator shall so notify the State and shall. within 60 days after the date of publication, publish in the Federal Register either:

(1) A withdrawal of the immediate final decision; or

(2) A notice; containing a response to comments and either affirming that the immediate final decision takes effect or reversing the decision.

[FR Doc. 95-20623 Filed 8-21-95; 8:45 am]
BILLING CODE 6560-50-P

EXHIBIT U

TABLE 1: ALTERNATIVE TREATMENT STANDARDS FOR HAZARDOUS DEBRIS[1]

Technology Description	Performance and/or Design and Operating Standard	Contaminant Restrictions[2]
A. Extraction Technologies		
1. Physical Extraction		
a. Abrasive Blasting: Removal of contaminated debris surface layers using water and/or air pressure to propel a solid media (e.g., steel shot, aluminum oxide grit, plastic beads).	Glass, Metal, Plastic, Rubber: Treatment to a clean debris surface[3] Brick, Cloth, Concrete, Paper, Pavement, Rock, Wood: Removal of at least 0.6 cm of the surface layer; treatment to a clean debris surface[3]	All Debris: None
b. Scarification, Grinding, and Planing: Process utilizing striking piston heads, saws, or rotating grinding wheels such that contaminated debris surface layers are removed.	Same as above	Same as above.
c. Spalling: Drilling or chipping holes at appropriate locations and depth in the contaminated debris surface and applying a tool which exerts a force on the sides of those holes such that the surface layer is removed. The surface layer removed remains hazardous debris subject to the debris treatment standards.	Same as above	Same as above.
d. Vibratory Finishing: Process utilizing scrubbing media, flushing fluid, and oscillating energy such that hazardous contaminants or contaminated debris surface layers are removed[4]	Same as above	Same as above.

---

1 Hazardous debris must be treated by either these standards or the waste-specific treatment standards for the waste contaminating the debris. The treatment standards must be met for each type of debris contained in a mixture of debris types, unless the debris is converted into treatment residue as a result of the treatment process. Debris treatment residuals are subject to the waste-specific treatment standards for the waste contaminating the debris.

2 Contaminant restriction means that the technology is not BDAT for that contaminant. If debris containing a restricted contaminant is treated by the technology, the contaminant must be subsequently treated by a technology for which it is not restricted in order to be land disposed (and excluded from Subtitle C regulation).

3 "Clean debris surface" means the surface, when viewed without magnification, shall be free of all visible contaminated soil and hazardous waste except that residual staining from soil and waste consisting of light shadows, slight streaks, or minor discolorations, and soil and waste in cracks, crevices, and pits may be present provided that such staining and waste and soil in cracks, crevices, and pits shall be limited to no more than 5% of each square inch of surface area.

4 Acids, solvents, and chemical reagents may react with some debris and contaminants to form hazardous compounds. For example, acid washing of cyanide-contaminated debris could result in the formation of hydrogen cyanide. Some acids may also react violently with some debris and contaminants, depending on the concentration of the acid and the type of debris and contaminants. Debris treaters should refer to the safety precautions specified in Material Safety Data Sheets for various acids to avoid applying an incompatible acid to a particular debris/contaminant combination. For example, concentrated sulfuric acid may react violently with certain organic compounds, such as acrylonitrile

Technology Description	Performance and/or Design and Operating Standard	Contaminant Restrictions
e. High Pressure Steam and Water Sprays: Application of water or steam sprays of sufficient temperature, pressure, residence time, agitation, surfactants, and detergents to remove hazardous contaminants from debris surfaces or to remove contaminated debris surface layers.	Same as above.	Same as above.
2. Chemical Extraction		
a. Water Washing and Spraying: Application of water sprays or water baths of sufficient temperature, pressure, residence time, agitation, surfactants, acids, bases, and detergents to remove hazardous contaminants from debris surfaces and surface pores or to remove contaminated debris surface layers	All Debris: Treatment to a clean debris surface[3]; Brick, Cloth, Concrete, Paper, Pavement, Rock, Wood: Debris must be no more than 1.2 cm (1/2 inch) in one dimension (i.e., thickness limit)[5], except that this thickness limit may be waived under an "Equivalent Technology" approval under §268.42(b)[8]; debris surfaces must be in contact with water solution for at least 15 minutes	Brick, Cloth, Concrete, Paper, Pavement, Rock, Wood: Contaminant must be soluble to at least 5% by weight in water solution or 5% by weight in emulsion; if debris is contaminated with a dioxin-listed waste[6], an "Equivalent Technology" approval under §268.42(b) must be obtained.[8]
b. Liquid Phase Solvent Extraction: Removal of hazardous contaminants from debris surfaces and surface pores by applying a nonaqueous liquid or liquid solution which causes the hazardous contaminents to enter the liquid phase and be flushed way from the debris along with the liquid or liquid solution while using appropriate agitation, temperature, and residence time[4]	Same as above	Brick, Cloth, Concrete, Paper, Pavement, Rock, Wood: Same as above, except that contaminant must be soluble to at least 5% by weight in the solvent.
c. Vapor Phase Solvent Extraction: Application of an organic vapor using sufficient agitation, residence time, and temperature to cause hazardous contaminants on contaminated debris surfaces and surface pores to enter the vapor phase and be flushed away with the organic vapor.[4]	Same as above, except that brick, cloth, concrete, paper, pavement, rock and wood surfaces must be in catact with the organic vapor for at least 60 minutes.	Same as above

---

5 If reducing the particle size of debris to meet the treatment standards results in material that no longer meets the 60 mm minimum particle size limit for debris, such material is subject to the waste-specific treatment standards for the waste contaminating the material, unless the debris has been cleaned and separated from contaminated soil and waste prior to size reduction. At a minimum, simple physical or mechanical means must be used to provide such cleaning and separation of nondebris materials to ensure that the debris surface is free of caked soil, waste, or other nondebris material.

6 Dio[illegible] listed wastes are EPA Hazardous Waste numbers FO20, FO21, FO22, FO2[illegible] [illegible]O26, and FO27.

Technology Description	Performance and/or Design and Operating Standard	Contaminant Restrictions
3. Thermal Extraction		
a. High Temperature Metals Recovery: Application of sufficient heat, residence time, mixing, fluxing agents, and/or carbon in a smelting, melting, or refining furnace to separate metals from debris.	For refining furnaces, treated debris must be separated from treatment residuals using simple physical or mechanical means[9], and, prior to further treatment, such residuals must meet the waste-specific treatment standards for organic compounds in the waste contaminating the debris.	Debris contaminated with a dioxin-listed waste[5]: Obtain an "Equivalent Technology" approval under §268.42(b).[8]
b. Thermal Desorption: Heating in an enclosed chamber under either oxidizing or nonoxidizing atmospheres at sufficient temperature and residence time to vaporize hazardous contaminants from contaminated surfaces and surface pores and to remove the contaminants from the heating chamber in a gaseous exhaust gas.[7]	All Debris: Obtain an "Equivalent Technology" approval under §268.42(b)[8]; treated debris must be separated from treatment residuals using simple physical or mechanical means[9], and, prior to further treatment, such residue must meet the waste-specific treatment standards for organic compounds in the waste contaminating the debris. Brick, Cloth, Concrete, Paper, Pavement, Rock, Wood: Debris must be no more than 10 cm (4 inches) in one dimension (i.e., thickness limit)[5], except that this thickness limit may be waived under the "Equivalent Technology" approval.	All Debris: Metals other than mercury.

---

7 Thermal Desorption is distinguished from Thermal Destruction in that the primary purpose of Thermal Desorption is to volatilize contaminants and to remove them from the treatment chamber for subsequent destruction or other treatment.

8 The demonstration of "Equivalent Technology" under §268.42(b) must document that the technology treats contaminants subject to treatment to a level equivalent to that required by the performance and design and operating standards for other technologies in this table such that residual levels of hazardous contaminants will not pose a hazard to human health and the environment absent management controls.

9 Any soil, waste, and other nondebris material that remains on the debris surface (or remains mixed with the debris) after treatment is considered a treatment residual that must be separated from the debris using, at a minimum, simple physical or mechanical means. Examples of simple physical or mechanical means are vibratory or trommel screening or water washing. The debris surface need not be cleaned to a "clean debris surface" as defined in note 3 when separating treated debris from residue; rather, the surface must be free of caked soil, waste, or other nondebris material. Treatment residuals are subject to the waste-specific treatment standards for the waste contaminating the debris.

Technology Description	Performance and/or Design and Operating Standard	Contaminant Restrictions
II Destruction Technologies		
1. Biological Destruction (Biodegradation): Removal of hazardous contaminants from debris surfaces and surface pores in an aqueous solution and biodegration of organic or nonmetallic inorganic compounds (i.e., inorganics that contain phosphorus, nitrogen, or sulfur) in units oprerated under either aerobic or anaerobic conditions	All Debris: Obtain an "Equivalent Technology" approval under §268.42(b)[6]; treated debris must be separated from treatment residuals using simple physical or mechanical means[9], and, prior to further treatment, suich residue must meet the waste-specific treatment standards for organic compounds in the waste contaminating the debris. Brick, Cloth, Concrete, Paper, Pavement, Rock, Wood: Debris must be no more than 1.2 cm (1/2 inch) in one dimension (i.e., thickness limit)[5], except that this thickness limit may be waived under the "Equivalent Technology" approval.	All Debris: Metal contaminants.
2. Chemical Destruction		
a. Chemical Oxidation: Chemical or electolytic oxidation utilizing the following oxidation reagents (or waste reagents) or combination of reagents -- (1) hypochlorite (e.g., bleach); (2) chlorine; (3) chlorine dioxide; (4) ozone or UV (ultraviolet light) assisted ozone; (5) peroxides; (6) persulfates; (7) perchlorates; (8) permanganates; and/or (9) other oxidizing reagents of equivalent destruction efficiency.[4] Chemical oxidation specifically includes what is referred to as alkaline chlorination.	All Debris: Obtain an "Equivalent Technology" approval under §268.42(b)[6]; treated debris must be separated from treatment residuals using simple physical or mechanical means[9], and, prior to further treatment, such residue must meet the waste-specific treatment standards for organic compounds in the waste contaminating the debris. Brick, Cloth, Concrete, Paper, Pavement, Rock, Wood: Debris must be no more than 1.2 cm (1/2 inch) in one dimension (i.e., thickness limit)[5], except that this thickness limit may be waived under the "Equivalent Technology" approval.	All Debris: Metal contaminants
b. Chemical Reduction: Chemical reaction utilizing the following reducing reagents (or waste reagents) or combination of reagents: (1) sulfur dioxide; (2) sodium, potassium, or alkali salts of sulfites, bisulfites, and metabisulfites, and polyethylene glycols (e.g., NaPEG and KPEG); (3) sodium hydrosulfide; (4) ferrous salts; and/or (5) other reducing reagens of equivalent efficiency.[4]	Same as above.	Same as above.

Technology Description	Performance and/or Design and Operating Standard	Contaminant Restrictions
3. Thermal Destruction: Treatment in an incinerator operating in accordance with Subpart O of Parts 264 or 265 of this chapter; a boiler or industrial furnace operating in accordance with Subpart H of Part 266 of this chapter, or other thermal treatment unit operated in accordance with Subpart X, Part 264 of this chapter, or Subpart P, Part 265 of this chapter, but excluding for purposes of these debris treatment standards Thermal Desorption units.	Treated debris must be separated from treatment residuals using simple physical or mechanical means[9], and, prior to further treatment, such residue must meet the waste-specific treatment standards for organic compounds in the waste contaminating the debris.	Brick, Concrete, Glass, Metal, Pavement, Rock; Metal: Metals other than mercury, except that there are no metal restrictions for vitrification. Debris contaminated with a dioxin-listed waste[6]: Obtain an "Equivalent Technology" approval under §268.42(b)[8], except that this requirement does not apply to vitrification.
C. Immobilization Technologies		
1. Macroencapsulation: Application of surface coating materials such as polymeric organics (e.g., resins and plastics) or use of a jacket of inert inorganic materials to substantially reduce surface exposure to potential leaching media.	Encapsulating material must completely encapsulate debris and be resistent to degradation by the debris and its contaminants and materials into which it may come into contact after placement (leachate, other waste, microbes)	None
2. Microencapsulation: Stabilization of the debris with the following reagents (or waste reagents) such that the leachability of the hazardous contaminants is reduced: (1) Portland cement; or (2) lime/pozzolans (e.g., fly ash and cement kiln dust). Reagents (e.g., iron salts, silicates, and clays) may be added to enhance the set/cure time and/or compressive strength, or to reduce the leachability of the hazardous constituents.[5]	Leachability of the hazardous contaminants must be reduced.	None
3. Sealing: Application of an appropriate material which adheres tightly to the debris surface to avoid exposure of the surface to potential leaching media. When necessary to effectively seal the surface, sealing entails pretreatment of the debris surface to remove foreign matter and to clean and roughen the surface. Sealing materials include epoxy, silicone, and urethane compounds, but paint may not be used as a sealant.	Sealing must avoid exposure of the debris surface to potential leaching media and sealant must be resistent to degradation by the debris and its contaminants and materials into which it may come into contact after placement (leachate, other waste, microbes)	None

EXHIBIT V

Subpart C—Characteristics of Hazardous Waste

§261.20 General.

(a) A solid waste, as defined in §261.2, which is not excluded from regulation as a hazardous waste under §261.4(b), is a hazardous waste if it exhibits any of the characteristics identified in this subpart.

[*Comment*: §262.11 of this chapter sets forth the generator's responsibility to determine whether his waste exhibits one or more of the characteristics identified in this subpart]

(b) A hazardous waste which is identified by a characteristic in this subpart is assigned every EPA Hazardous Waste Number that is applicable as set forth in this subpart. This number must be used in complying with the notification requirements of section 3010 of the Act and all applicable recordkeeping and reporting requirements under parts 262 through 265, 268, and 270 of this chapter.

(c) For purposes of this subpart, the Administrator will consider a sample obtained using any of the applicable sampling methods specified in appendix I to be a representative sample within the meaning of part 260 of this chapter.

[*Comment*: Since the appendix I sampling methods are not being formally adopted by the Administrator, a person who desires to employ an alternative sampling method is not required to demonstrate the equivalency of his method under the procedures set forth in §§260.20 and 260.21.]

[45 FR 33119, May 19, 1980, as amended at 51 FR 40636, Nov. 7, 1986; 55 FR 22684, June 1, 1990; 56 FR 3876, Jan. 31, 1991]

§261.21 Characteristic of ignitability.

(a) A solid waste exhibits the characteristic of ignitability if a representative sample of the waste has any of the following properties:

(1) It is a liquid, other than an aqueous solution containing less than 24 percent alcohol by volume and has flash point less than 60°C (140°F), as determined by a Pensky-Martens Closed Cup Tester, using the test method specified in ASTM Standard D-93-79 or D-93-80 (incorporated by reference, see §260.11), or a Setaflash Closed Cup Tester, using the test method specified in ASTM Standard D-3278-78 (incorporated by reference, see §260.11), or as determined by an equivalent test method approved by the Administrator under procedures set forth in §§260.20 and 260.21.

(2) It is not a liquid and is capable, under standard temperature and pressure, of causing fire through friction, absorption of moisture or spontaneous chemical changes and, when ignited, burns so vigorously and persistently that it creates a hazard.

(3) It is an ignitable compressed gas as defined in 49 CFR 173.300 and as determined by the test methods described in that regulation or equivalent test methods approved by the Administrator under §§260.20 and 260.21.

(4) It is an oxidizer as defined in 49 CFR 173.151.

(b) A solid waste that exhibits the characteristic of ignitability has the EPA Hazardous Waste Number of D001.

[45 FR 33119, May 19, 1980, as amended at 46 FR 35247, July 7, 1981; 55 FR 22684, June 1, 1990]

§261.22 Characteristic of corrosivity.

(a) A solid waste exhibits the characteristic of corrosivity if a representative sample of the waste has either of the following properties:

(1) It is aqueous and has a pH less than or equal to 2 or greater than or equal to 12.5, as determined by a pH meter using Method 9040 in "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," EPA Publication SW-846, as incorporated by reference in §260.11 of this chapter.

(2) It is a liquid and corrodes steel (SAE 1020) at a rate greater than 6.35 mm (0.250 inch) per year at a test temperature of 55°C (130°F) as determined by the test method specified in NACE (National Association of Corrosion Engineers) Standard TM-01-69 as standardized in "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," EPA Publication SW-846, as incorporated by reference in §260.11 of this chapter.

(b) A solid waste that exhibits the characteristic of corrosivity has the EPA Hazardous Waste Number of D002.

[45 FR 33119, May 19, 1980, as amended at 46 FR 35247, July 7, 1981; 55 FR 22684, June 1, 1990; 58 FR 46049, Aug. 31, 1993]

§261.23 Characteristic of reactivity.

(a) A solid waste exhibits the characteristic of reactivity if a representative sample of the waste has *any* of the following properties:

(1) It is normally unstable and readily undergoes violent change without detonating.

(2) It reacts violently with water.

(3) It forms potentially explosive mixtures with water.

(4) When mixed with water, it generates toxic gases, vapors or fumes in a quantity sufficient to present a danger to human health or the environment.

(5) It is a cyanide or sulfide bearing waste which, when exposed to pH conditions between 2 and 12.5, can generate toxic gases, vapors or fumes in a quantity sufficient to present a danger to human health or the environment.

(6) It is capable of detonation or explosive reaction if it is subjected to a strong initiating source or if heated under confinement.

(7) It is readily capable of detonation or explosive decomposition or reaction at standard temperature and pressure.

(8) It is a forbidden explosive as defined in 49 CFR 173.51, or a Class A explosive as defined in 49 CFR 173.53 or a Class B explosive as defined in 49 CFR 173.88.

(b) A solid waste that exhibits the characteristic of reactivity has the EPA Hazardous Waste Number of D003.

[45 FR 33119, May 19, 1980, as amended at 55 FR 22684, June 1, 1990]

§261.24 Toxicity characteristic.

(a) A solid waste exhibits the characteristic of toxicity if, using the Toxicity Characteristic Leaching Procedure, test Method 1311 in "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," EPA Publication SW-846, as incorporated by reference in §260.11 of this chapter, the extract from a representative sample of the waste contains any of the contaminants listed in table 1 at the concentration equal to or greater than the respective value given in that table. Where the waste contains less than 0.5 percent filterable solids, the waste itself, after filtering using the methodology outlined in Method 1311, is considered to be the extract for the purpose of this section.

(b) A solid waste that exhibits the characteristic of toxicity has the EPA Hazardous Waste Number specified in Table I which corresponds to the toxic contaminant causing it to be hazardous.

TABLE 1—MAXIMUM CONCENTRATION OF CONTAMINANTS FOR THE TOXICITY CHARACTERISTIC

EPA HW No.[1]	Contaminant	CAS No.[2]	Regulatory Level (mg/L)
D004	Arsenic	7440-38-2	5.0
D005	Barium	7440-39-3	100.0
D018	Benzene	71-43-2	0.5
D006	Cadmium	7440-43-9	1.0
D019	Carbon tetrachloride	56-23-5	0.5
D020	Chlordane	57-74-9	0.03
D021	Chlorobenzene	108-90-7	100.0
D022	Chloroform	67-66-3	6.0
D007	Chromium	7440-47-3	5.0
D023	o-Cresol	95-48-7	[4]200.0
D024	m-Cresol	108-39-4	[4]200.0
D025	p-Cresol	106-44-5	[4]200.0
D026	Cresol		[4]200.0
D016	2,4-D	94-75-7	10.0
D027	1,4-Dichlorobenzene	106-46-7	7.5
D028	1,2-Dichloroethane	107-06-2	0.5
D029	1,1-Dichloroethylene	75-35-4	0.7
D030	2,4-Dinitrotoluene	121-14-2	[3]0.13
D012	Endrin	72-20-8	0.02
D031	Heptachlor (and its epoxide).	76-44-8	0.008
D032	Hexachlorobenzene	118-74-1	[3]0.13
D033	Hexachlorobutadiene	87-68-3	0.5
D034	Hexachloroethane	67-72-1	3.0
D008	Lead	7439-92-1	5.0
D013	Lindane	58-89-9	0.4
D009	Mercury	7439-97-6	0.2
D014	Methoxychlor	72-43-5	10.0
D035	Methyl ethyl ketone	78-93-3	200.0
D036	Nitrobenzene	98-95-3	2.0
D037	Pentrachlorophenol	87-86-5	100.0
D038	Pyridine	110-86-1	[3]5.0
D010	Selenium	7782-49-2	1.0
D011	Silver	7440-22-4	5.0
D039	Tetrachloroethylene	127-18-4	0.7
D015	Toxaphene	8001-35-2	0.5
D040	Trichloroethylene	79-01-6	0.5
D041	2,4,5-Trichlorophenol	95-95-4	400.0
D042	2,4,6-Trichlorophenol	88-06-2	2.0
D017	2,4,5-TP (Silvex)	93-72-1	1.0
D043	Vinyl chloride	75-01-4	0.2

[1] Hazardous waste number.

[2] Chemical abstracts service number.

[3] Quantitation limit is greater than the calculated regulatory level. The quantitation limit therefore becomes the regulatory level.

[4] If o-, m-, and p-Cresol concentrations cannot be differentiated, the total cresol (D026) concentration is used. The regulatory level of total cresol is 200 mg/l

[55 FR 11862, Mar. 29, 1990, as amended at 55 FR 22684, June 1, 1990; 55 FR 26987, June 29, 1990; 58 FR 46049, Aug. 31, 1993]

Subpart C—Characteristics of Hazardous Waste

§261.20 General.

(a) A solid waste, as defined in §261.2, which is not excluded from regulation as a hazardous waste under §261.4(b), is a hazardous waste if it exhibits any of the characteristics identified in this subpart.

[*Comment*: §262.11 of this chapter sets forth the generator's responsibility to determine whether his waste exhibits one or more of the characteristics identified in this subpart]

(b) A hazardous waste which is identified by a characteristic in this subpart is assigned every EPA Hazardous Waste Number that is applicable as set forth in this subpart. This number must be used in complying with the notification requirements of section 3010 of the Act and all applicable recordkeeping and reporting requirements under parts 262 through 265, 268, and 270 of this chapter.

(c) For purposes of this subpart, the Administrator will consider a sample obtained using any of the applicable sampling methods specified in appendix I to be a representative sample within the meaning of part 260 of this chapter.

[*Comment*: Since the appendix I sampling methods are not being formally adopted by the Administrator, a person who desires to employ an alternative sampling method is not required to demonstrate the equivalency of his method under the procedures set forth in §§260.20 and 260.21.]

[45 FR 33119, May 19, 1980, as amended at 51 FR 40636, Nov. 7, 1986; 55 FR 22684, June 1, 1990; 56 FR 3876, Jan. 31, 1991]

§261.21 Characteristic of ignitability.

(a) A solid waste exhibits the characteristic of ignitability if a representative sample of the waste has any of the following properties:

(1) It is a liquid, other than an aqueous solution containing less than 24 percent alcohol by volume and has flash point less than 60°C (140°F), as determined by a Pensky-Martens Closed Cup Tester, using the test method specified in ASTM Standard D-93-79 or D-93-80 (incorporated by reference, see §260.11), or a Setaflash Closed Cup Tester, using the test method specified in ASTM Standard D-3278-78 (incorporated by reference, see §260.11), or as determined by an equivalent test method approved by the Administrator under procedures set forth in §§260.20 and 260.21.

(2) It is not a liquid and is capable, under standard temperature and pressure, of causing fire through friction, absorption of moisture or spontaneous chemical changes and, when ignited, burns so vigorously and persistently that it creates a hazard.

(3) It is an ignitable compressed gas as defined in 49 CFR 173.300 and as determined by the test methods described in that regulation or equivalent test methods approved by the Administrator under §§260.20 and 260.21.

(4) It is an oxidizer as defined in 49 CFR 173.151.

(b) A solid waste that exhibits the characteristic of ignitability has the EPA Hazardous Waste Number of D001.

[45 FR 33119, May 19, 1980, as amended at 46 FR 35247, July 7, 1981; 55 FR 22684, June 1, 1990]

§261.22 Characteristic of corrosivity.

(a) A solid waste exhibits the characteristic of corrosivity if a representative sample of the waste has either of the following properties:

(1) It is aqueous and has a pH less than or equal to 2 or greater than or equal to 12.5, as determined by a pH meter using Method 9040 in "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," EPA Publication SW-846, as incorporated by reference in §260.11 of this chapter.

(2) It is a liquid and corrodes steel (SAE 1020) at a rate greater than 6.35 mm (0.250 inch) per year at a test temperature of 55°C (130°F) as determined by the test method specified in NACE (National Association of Corrosion Engineers) Standard TM-01-69 as standardized in "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," EPA Publication SW-846, as incorporated by reference in §260.11 of this chapter.

(b) A solid waste that exhibits the characteristic of corrosivity has the EPA Hazardous Waste Number of D002.

[45 FR 33119, May 19, 1980, as amended at 46 FR 35247, July 7, 1981; 55 FR 22684, June 1, 1990; 58 FR 46049, Aug. 31, 1993]

§261.23 Characteristic of reactivity.

(a) A solid waste exhibits the characteristic of reactivity if a representative sample of the waste has *any* of the following properties:

(1) It is normally unstable and readily undergoes violent change without detonating.

(2) It reacts violently with water.

(3) It forms potentially explosive mixtures with water.

(4) When mixed with water, it generates toxic gases, vapors or fumes in a quantity sufficient to present a danger to human health or the environment.

(5) It is a cyanide or sulfide bearing waste which, when exposed to pH conditions between 2 and 12.5, can generate toxic gases, vapors or fumes in a quantity sufficient to present a danger to human health or the environment.

(6) It is capable of detonation or explosive reaction if it is subjected to a strong initiating source or if heated under confinement.

(7) It is readily capable of detonation or explosive decomposition or reaction at standard temperature and pressure.

(8) It is a forbidden explosive as defined in 49 CFR 173.51, or a Class A explosive as defined in 49 CFR 173.53 or a Class B explosive as defined in 49 CFR 173.88.

(b) A solid waste that exhibits the characteristic of reactivity has the EPA Hazardous Waste Number of D003.

[45 FR 33119, May 19, 1980, as amended at 55 FR 22684, June 1, 1990]

§261.24 Toxicity characteristic.

(a) A solid waste exhibits the characteristic of toxicity if, using the Toxicity Characteristic Leaching Procedure, test Method 1311 in "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," EPA Publication SW-846, as incorporated by reference in §260.11 of this chapter, the extract from a representative sample of the waste contains any of the contaminants listed in table 1 at the concentration equal to or greater than the respective value given in that table. Where the waste contains less than 0.5 percent filterable solids, the waste itself, after filtering using the methodology outlined in Method 1311, is considered to be the e
of this section.

(b) A solid wa
characteristic of
Hazardous Wast
Table I which co
contaminant ca
ous.

TABLE 1—MAXIMUM
TAMINANTS FOR T
TIC

EPA HW No.[1]	Contami
D004	Arsenic ....
D005	Barium ....
D018	Benzene ....
D006	Cadmium ......
D019	Carbon tetrac
D020	Chlordane ....
D021	Chlorobenzen
D022	Chloroform ..
D007	Chromium ...
D023	o-Cresol ......
D024	m-Cresol .....
D025	p-Cresol ......
D026	Cresol ....
D016	2,4-D ....
D027	1,4-Dichlorob
D028	1,2-Dichloroe
D029	1,1-Dichloroe
D030	2,4-Dinitrotol
D012	Endrin ....
D031	Heptachlor (oxide).
D032	Hexachlorobe
D033	Hexachlorobu
D034	Hexachloroet
D008	Lead ....
D013	Lindane ....
D009	Mercury ....
D014	Methoxychlo
D035	Methyl ethyl
D036	Nitrobenzene
D037	Pentrachlorop
D038	Pyridine ....
D010	Selenium .....
D011	Silver ....
D039	Tetrachloroet
D015	Toxaphene ..
D040	Trichloroethy
D041	2,4,5-Trichlo
D042	2,4,6-Trichlo
D017	2,4,5-TP (Sil
D043	Vinyl chloride

[1] Hazardous waste nu
[2] Chemical abstracts s
[3] Quantitation limit is g
level. The quantitation li
level.
[4] If o-, m-, and p-Cres
tiated, the total cresol (D
latory level of total cresol

[55 FR 11862, Mar.
FR 22691, June 1,
1990; 58 FR 46049, A

EXHIBIT W

United States Environmental Protection Agency

Office of Solid Waste and Emergency Response

9355:4-14FS
EPA/540/R-94/101
PB95-963529
December 1994

EPA

Soil Screening Guidance

Office of Emergency and Remedial Response
Hazardous Site Control Division

Quick Reference Fact Sheet

NOTICE: This document is draft for review only and should not be used until the guidance is finalized following public comment and peer review.

BACKGROUND

On June 19, 1991, the U.S. Environmental Protection Agency's (EPA's) Administrator charged the Office of Solid Waste and Emergency Response (OSWER) with conducting a 30-day study to outline options for accelerating the rate of cleanups at National Priorities List (NPL) sites. One of the specific proposals of the study was for OSWER to "examine the means to develop standards or guidelines for contaminated soils."

On June 23, 1993, EPA announced the development of "Soil Trigger Levels" as one of the Administrative Improvements to the Superfund program. On September 30, 1993, a draft fact sheet was released that presented generic Soil Screening Levels (SSLs) for 30 chemicals. The fact sheet presented standardized equations to model exposures to soil contaminants via ingestion, inhalation, and migration to ground water. The fact sheet provided generic defaults for each parameter in the equations and a sampling methodology to measure soil contaminant levels. The SSL initiative underwent widespread review both within and outside the Agency. Suggestions were made on how to improve the methodology and increase the usefulness of screening levels by finding simple ways to modify them using site-specific data.

Based on that review, EPA modified the SSLs into a Soil Screening framework that emphasizes the application of standardized equations for the site-specific evaluation of soil contaminants. This framework provides an overall approach for developing SSLs for specific contaminants and exposure pathways at a site under a residential land use scenario. Areas with soil contaminant concentrations below SSLs generally would not warrant further study or action under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).

The Soil Screening framework's point of departure is a simple methodology for calculating site-specific SSLs using easily obtained site data with standardized equations. An option for conducting a more detailed site-specific analysis is also included in the framework. In addition, default parameters are used in the standardized equations to produce a table of generic Soil Screening Levels for 107 chemicals that update those presented in the September 30, 1993, draft SSL fact sheet. These generic SSLs are included in the framework as a default option for use when site-specific values are not available.

PURPOSE OF SOIL SCREENING FRAMEWORK

The Soil Screening framework represents the first of several tools EPA plans to develop to standardize the evaluation and cleanup of contaminated soils. SSLs streamline the remedial investigation/feasibility study (RI/FS) process by accelerating and increasing consistency in decisions concerning soil contamination. As a future companion to the Soil Screening framework, EPA also intends to develop a methodology to identify levels of contamination that clearly warrant a response action or, possibly, concentrations for which treatment would be required. The screening levels at the low end and the higher concentration values that warrant response can be used to identify the bounds of a risk management continuum (Figure 1). Generally, within this continuum lies a range of possible cleanup levels that will continue to be determined on a site-specific basis.

EPA anticipates the use of the Soil Screening framework as a tool to facilitate prompt identification of the contaminants and exposure areas of concern during both remedial actions and some removal actions under CERCLA. SSLs do not trigger

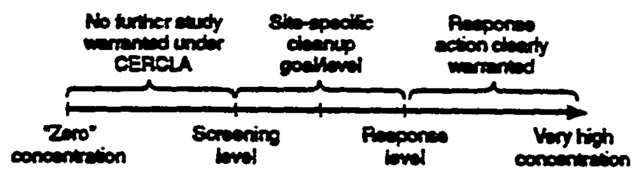


Figure 1. Risk management spectrum for contaminated soil.

Appendix A. Generic Soil Screening Levels for Superfund[a]

NOTICE: These values were developed for use in application of the Soil Screening Guidance only. They were developed for specific exposure pathways constituting a residential scenario and should only be used in that context.

CAS No.	Chemical	Pathway-specific values for surface soils (mg/kg)		Migration to ground water pathway levels (mg/kg)	
		Ingestion	Inhalation	With 10 DAF	With 1 DAF
83-32-9	Acenaphthene	4,700 [b]	— [c]	200 [b]	20
67-64-1	Acetone	7,800 [b]	62,000 [d]	8 [b]	0.8
309-00-2	Aldrin	0.04 [e]	0.5 [e]	0.005 [e]	5E-4
120-12-7	Anthracene	23,000 [b]	— [c]	4,300 [b]	430
71-43-2	Benzene	22 [e]	0.5 [e]	0.02	0.002
56-55-3	Benzo(*a*)anthracene	0.9 [e]	— [c]	0.7	0.07
205-99-2	Benzo(*b*)fluoranthene	0.9 [e]	— [c]	4	0.4
207-08-9	Benzo(*k*)fluoranthene	9 [e]	— [c]	4	0.4
50-32-8	Benzo(a)pyrene	0.09 [e,f]	— [c]	4	0.4
111-44-4	Bis(2-chlorethyl)ether	0.6 [e]	0.3 [e,f]	3E-4 [e,f]	3E-5
117-81-7	Bis(2-ethylhexyl)phthalate	46 [e]	210 [d]	11	
75-27-4	Bromodichloromethane	5 [e]	1,800 [d]	0.3	0.0
75-25-2	Bromoform	81 [e]	46 [e]	0.5	0.0
71-36-3	Butanol	7,800 [b]	9,700 [d]	8 [b]	0.8
85-68-7	Butyl benzyl phthalate	16,000 [b]	530 [d]	68	
86-74-8	Carbazole	32 [e]	— [c]	0.2 [e,f]	0.02
75-15-0	Carbon disulfide	7,800 [b]	11 [b]	14 [b]	1
56-23-5	Carbon tetrachloride	5 [e]	0.2 [e]	0.03	0.003
57-74-9	Chlordane	0.5 [e]	10 [e]	2	0.
108-90-7	Chlorobenzene	1,600 [b]	94 [b]	0.6	0.0
124-48-1	Chlorodibromomethane	8 [e]	1,900 [d]	0.2	0.0
67-66-3	Chloroform	110 [e]	0.2 [e]	0.3	0.0
218-01-9	Chrysene	88 [e]	— [c]	1	0.1
72-54-8	DDD	3 [e]	— [c]	0.7 [e]	0.07
72-55-9	DDE	2 [e]	— [c]	0.5 [e]	0.05
50-29-3	DDT	2 [e]	80 [e]	1 [e]	0.1
53-70-3	Dibenzo(*a,h*)anthracene	0.09 [e,f]	— [c]	11	
84-74-2	Di-*n*-butyl phthalate	7,800 [b]	100 [d]	120 [b]	12
95-50-1	1,2-Dichlorobenzene (*o*)	7,000 [b]	300 [d]	6	0.
106-46-7	1,4-Dichlorobenzene (*p*)	27 [e]	7,700 [b]	1	0.1
91-94-1	3,3-Dichlorobenzidine	1 [e]	— [c]	0.01 [e,f]	0.001
75-34-3	1,1-Dichloroethane	7,800 [b]	980 [b]	11 [b]	1
107-06-2	1,2-Dichloroethane	7 [e]	0.3 [e]	0.01 [f]	0.001
75-35-4	1,1-Dichloroethylene	1 [e]	0.04 [e]	0.03	0.003
156-59-2	*cis*-1,2-Dichloroethylene	780 [b]	1,500 [d]	0.2	0.0
156-60-5	*trans*-1,2-Dichloroethylene	1,600 [b]	3,600 [d]	0.3	0.0
78-87-5	1,2-Dichloropropane	9 [e]	11 [b]	0.02	0.002
542-75-6	1,3-Dichloropropene	4 [e]	0.1 [e]	0.001 [e,f]	1E-4
60-57-1	Dieldrin	0.04 [e]	2 [e]	0.001 [e,f]	1E-4
84-66-2	Diethyl phthalate	63,000 [b]	520 [d]	110 [b]	11
131-11-3	Dimethyl phthalate	7.8E+5 [b]	1,600 [d]	1,200 [b]	120
121-14-2	2,4-Dinitrotoluene	160 [b]	— [c]	0.2 [b,f]	0.02
606-20-2	2,6-Dinitrotoluene	78 [b]	— [c]	0.1 [b,f]	0.01

(continued)

Appendix A (continued)

CAS No.	Chemical	Pathway-specific values for surface soils (mg/kg) Ingestion	Inhalation	Migration to ground water pathway levels (mg/kg) With 10 DAF	With 1 DAF
117-84-0	Di-*n*-octyl phthalate	1,600 [b]	— [c]	— [g]	— [g]
115-29-7	Endosulfan	470 [b]	— [c]	4 [b]	0.4 [b]
72-20-8	Endrin	23 [b]	— [c]	0.4	0.04
100-41-4	Ethylbenzene	7,800 [b]	260 [d]	5	0.5
206-44-0	Fluoranthene	3,100 [b]	— [c]	980 [b]	98 [b]
86-73-7	Fluorene	3,100 [b]	— [c]	160 [b]	16 [b]
76-44-8	Heptachlor	0.1 [e]	0.3 [e]	0.06	0.006
1024-57-3	Heptachlor epoxide	0.07 [e]	1 [e]	0.03	0.003
118-74-1	Hexachlorobenzene	0.4 [e]	1 [e]	0.8	0.08 [f]
87-68-3	Hexachloro-1,3-butadiene	8 [e]	1 [e]	0.1 [f]	0.01 [f]
319-84-6	α-HCH (α-BHC)	0.1 [e]	0.9 [e]	4E-4 [e,f]	4E-5 [e,f]
319-85-7	β-HCH (β-BHC)	0.4 [e]	16 [e]	0.002 [e]	2E-4 [e,f]
58-89-9	γ-HCH (Lindane)	0.5 [e]	— [c]	0.006	6E-4 [f]
77-47-4	Hexachlorocyclopentadiene	550 [b]	2 [b]	10	1
67-72-1	Hexachloroethane	46 [e]	49 [e]	0.2 [e,f]	0.02 [e,f]
193-39-5	Indeno(1,2,3-*c,d*)pyrene	0.9 [e]	— [c]	35	3
78-59-1	Isophorone	670 [e]	3,400 [d]	0.2 [e,f]	0.02 [e,f]
72-43-5	Methoxychlor	390 [b]	— [c]	62	6
74-83-9	Methyl bromide	110 [b]	2 [b]	0.1 [b]	0.01 [b,f]
75-09-2	Methylene chloride	85 [e]	7 [e]	0.01 [f]	0.001 [f]
91-20-3	Naphthalene	3,100 [b]	— [c]	30 [b]	3 [b]
98-95-3	Nitrobenzene	39 [b]	110 [b]	0.09 [b,f]	0.009 [b,f]
1336-36-3	Polychlorinated biphenyls (PCBs)	1 [h]	— [c,h]	— [h]	— [h]
129-00-0	Pyrene	2,300 [b]	— [c]	1,400 [b]	140 [b]
100-42-5	Stryene	16,000 [b]	1,400 [d]	2	0.2
79-34-5	1,1,2,2-Tetrachloroethane	3 [e]	0.4 [e]	0.001 [e,f]	1E-4 [e,f]
127-18-4	Tetrachloroethylene	12 [e]	11 [e]	0.04	0.004 [f]
108-88-3	Toluene	16,000 [b]	520 [d]	5	0.5
8001-35-2	Toxaphene	0.6 [e]	5 [d]	0.04 [f]	0.004 [f]
120-82-1	1,2,4-Trichlorobenzene	780 [b]	240 [b]	2	0.2 [f]
71-55-6	1,1,1-Trichloroethane	— [c]	980 [d]	0.9	0.09
79-00-5	1,1,2-Trichloroethane	11 [e]	0.8 [e]	0.01 [f]	0.001 [f]
79-01-6	Trichloroethylene	58 [e]	3 [e]	0.02	0.002 [f]
108-05-4	Vinyl acetate	78,000 [b]	370 [b]	84 [b]	8 [b]
75-01-4	Vinyl chloride	0.3 [e]	0.002 [e,f]	0.01 [f]	0.001 [f]
1330-20-7	Xylenes (total)	1.6E+5 [b]	320 [d]	74	7
	Ionizable Organics				
65-85-0	Benzoic acid	3.1E+5 [b]	— [c]	280 [b,i]	28 [b,i]
106-47-8	*p*-Chloroaniline	310 [b]	— [c]	0.3 [b,f,i]	0.03 [b,f,i]
95-57-8	2-Chlorophenol	390 [b]	53,000 [d]	2 [b,i]	0.2 [b,f,i]
120-83-2	2,4-Dichlorophenol	240 [b]	— [c]	0.5 [b,i]	0.05 [b,f,i]
105-67-9	2,4-Dimethylphenol	1,600 [b]	— [c]	3 [b,i]	0.3 [b,f,i]
51-28-5	2,4-Dinitrophenol	160 [b]	— [c]	0.1 [b,f,i]	0.01 [b,f,i]
95-48-7	2-Methylphenol	3,900 [b]	— [c]	6 [b,i]	0.6 [b,i]

(continued)

Appendix A (continued)

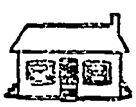
CAS No.	Chemical	Pathway-specific values for surface soils (mg/kg) Ingestion	Inhalation	Migration to ground water pathway levels (mg/kg) With 10 DAF	With 1 DAF
86-30-6	*N*-Nitrosodiphenylamine	130 [e]	— [c]	0.2 [e,f,i]	0.02 [e,i]
621-64-7	*N*-Nitrosodi-*n*-propylamine	0.09 [e,f]	— [c]	2E-5 [e,f,i]	2E-6 [e,i]
87-86-5	Pentachlorophenol	3 [e,j]	— [c]	0.01 [f,i]	0.001 [i]
108-95-2	Phenol	47,000 [b]	— [c]	49 [b,i]	5 [b]
95-95-4	2,4,5-Trichlorophenol	7,800 [b]	— [c]	120 [b,i]	12 [b]
88-06-2	2,4,6-Trichlorophenol	58 [e]	210 [e]	0.06 [e,f,i]	0.006 [e,i]
	Inorganics				
7440-36-0	Antimony	31 [b]	— [c]	— [k]	—
7440-38-2	Arsenic	0.4 [e]	380 [e]	15 [i]	1
7440-39-3	Barium	5,500 [b]	3.5E+5 [b]	32 [i]	3
7440-41-7	Beryllium	0.1 [e]	690 [e]	180 [i]	18
7440-43-9	Cadmium	39 [b]	920 [e]	6 [i]	0.6
7440-47-3	Chromium (6+)	390 [b]	140 [e]	19 [i]	2
7439-92-1	Lead	400 [l]	—	—	—
7439-97-6	Mercury	23 [b]	7 [b,j]	3 [i]	0.3 [i]
7440-02-0	Nickel	1,600 [b]	6,900 [e]	21 [i]	2 [i]
7782-49-2	Selenium	390 [b]	— [c]	3 [i]	0.3 [i]
7440-22-4	Silver	390 [b]	— [c]	— [k]	— [k]
7440-28-0	Thallium	— [c]	— [c]	0.4 [i]	0.04 [i]
7440-62-2	Vanadium	550 [b]	— [c]	— [k]	— [k]
7440-66-6	Zinc	23,000 [b]	— [c]	42,000 b,i	4,200 b,i
57-12-5	Cyanide	1,600 [b]	— [c]	— [k]	— [k]

DAF = Dilution and attenuation factor.

a Screening levels based on human health criteria only.
b Calculated values correspond to a noncancer hazard quotient of 1.
c No toxicity criteria available for that route of exposure.
d Soil saturation concentration (C_{sat}).
e Calculated values correspond to a cancer risk level of 1 in 1,000,000.
f Level is at or below Contract Laboratory Program required quantitation limit for Regular Analytical Services (RAS).
g Chemical-specific properties are such that this pathway is not of concern at any soil contaminant concentration.
h A preliminary remediation goal of 1 ppm has been set for PCBs based on *Guidance on Remedial Actions for Superfund Sites with PCB Contamination*, EPA/540G-90/007, Office of Emergency and Remedial Response, U.S. Environmental Protection Agency Washington, DC, 1990, and on Agency-wide efforts to manage PCB contamination.
i SSL for pH of 6.8.
j Ingestion SSL adjusted by a factor of 0.5 to account for dermal exposure.
k Soil/water partition coefficients not available at this time.
l A preliminary remediation goal of 400 mg/kg has been set for lead based on *Revised Interim Soil Lead Guidance for CERCLA Sites and RCRA Corrective Action Facilities*, OSWER Directive #9355.4-12, Office of Solid Waste and Emergency Response, U.S. Environmental Protection Agency, Washington, DC, July 14, 1994.

Indicates potential for soil-plant-human exposure.

Levels developed for residential use only:



Residential

Industrial

Agricultural